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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIII
No. 8

New York, November 21, 1917

Ten cents a copy
Two dollars a year



Editorial Contents—Page 3

Advertisers' Index—Next to Last Page

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Van Sicklen
ELGIN

SPEEDMETERS

Built to Watchmaker's standards by Elgin watchmakers in the largest and finest equipped speedmeter factory in the world.

The Van Sicklen Company, Elgin, Ill.
Factory—Elgin National Watch Company

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Studebaker

WHETHER the war continues for years or only for a few months or weeks, Studebaker's success and the success of Studebaker dealers is assured.

After 65 years of business success, Studebaker is, today, stronger and abler than ever; with increased assets, uninterrupted expansion projects and well formulated plans for even greater achievements.

If there is no Studebaker dealer in your town, write us for detailed information.

STUDEBAKER

Detroit, Mich. South Bend, Ind. Walkerville, Ont.

Address all correspondence to South Bend.

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Two Submarine KINGS

-Proving that you can't keep a good car down



SOUTH AFRICA

KING WILLIAMS TOWN, JULY 24, 1917

"The King Car which I used as demonstrator has just finished a trip to Cape Town and back without any mechanical trouble or adjustments whatever, the only thing that has happened is that the top of one rear spring bolt has come off. Some of the rivers crossed were full and the water rose to the height of the headlamps and radiator, but the car went through without stopping and is in perfect condition after the 1300 mile trip, most of it being done in rainy weather. The tyres also are worn very, very little when one takes into consideration the state of the roads travelled. South African roads are by no means billiard tables."

A. VERNON EVERITT

KING MOTOR CAR CO. KING THE CAR OF NO REGRETS DETROIT U.S.A.

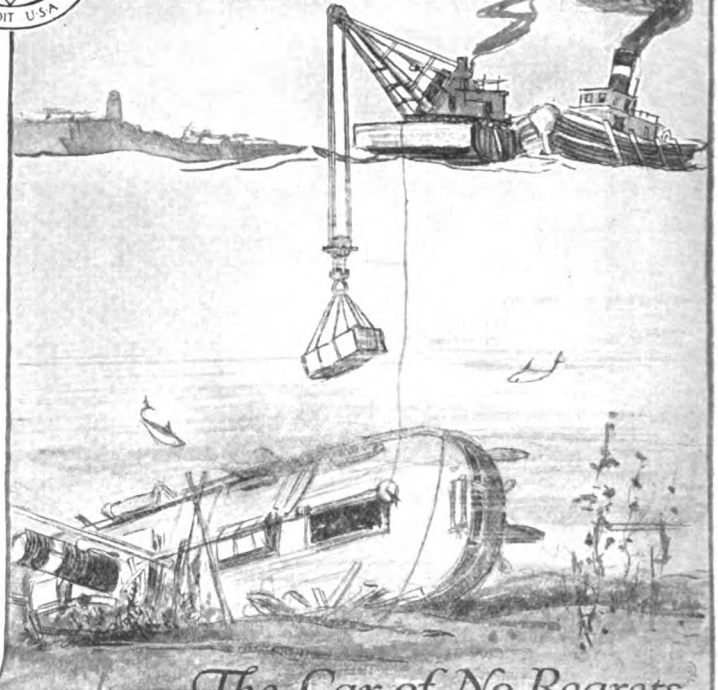
CHINA

HONGKONG, JULY 16, 1917

King Eight Touring Car (No. 6720) sent to European Russia via Vladivostok in munition ship—Steamer wrecked off Chinese coast—After three months in salt water and eaten by corrosive acids from explosives, King car was raised and sold at auction—Purchased by an English merchant,(name on request)of Hongkong, who, though inexperienced mechanically, took car to pieces with aid of coolie, labelling each part, and re-assembled—Car ran perfectly on first trial—Mr.—— says: "The engine and its parts are perfect, no car could possibly run better, this after three months in salt water mixed with all sorts of ammunition chemicals."

King Motor Car Company

DETROIT



The Car of No Regrets

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

The Class Journal Co.

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Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
Charles B. Shanks, Manager

Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
H. F. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
Detroit—95 Fort Street, West, Phone Main 1851
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"NORMA"
BALL BEARINGS
(Patented)

The running of a car or truck—its steadiness, its power, its smoothness, its dependability—rest ultimately upon the performance of a hundred component parts. Failure in one of these may destroy that smooth unity which differentiates good performance from unending bother.

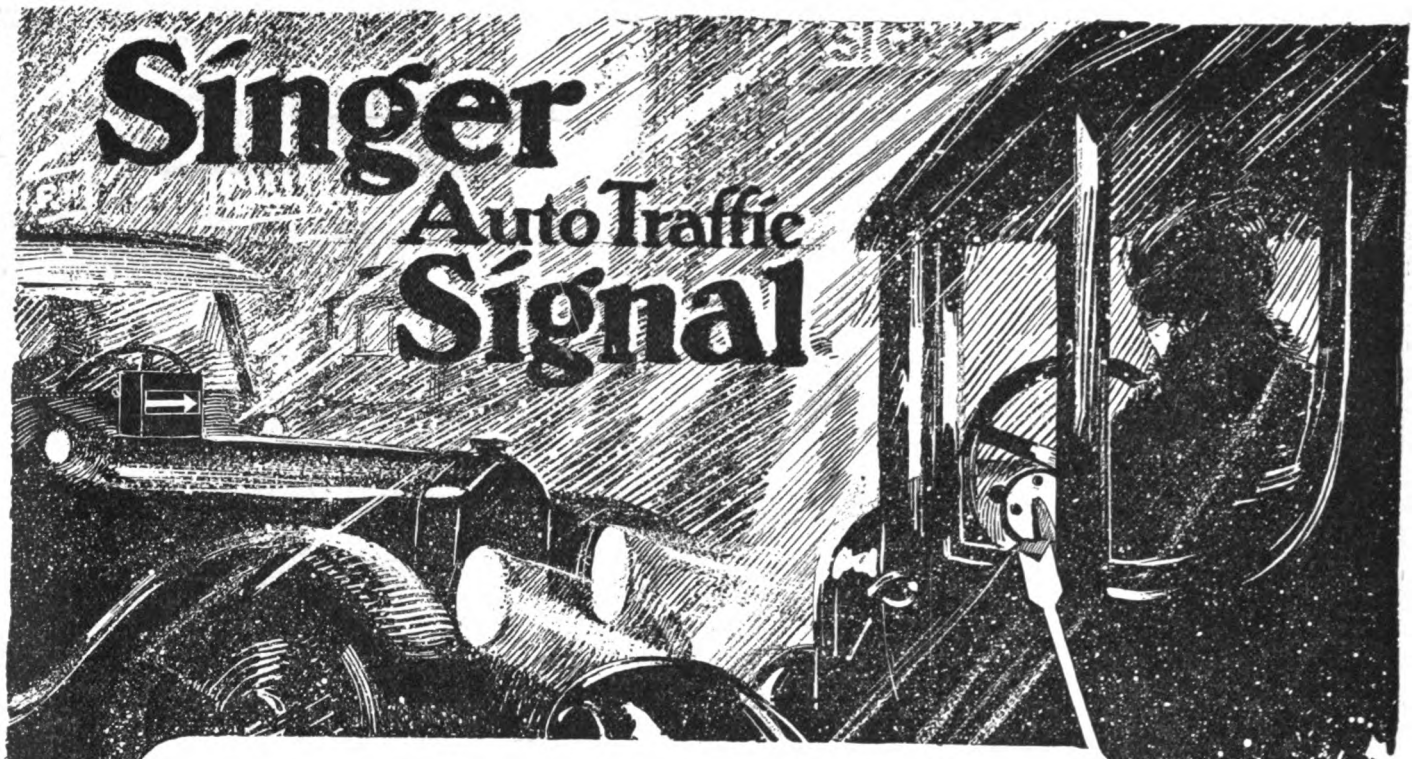
Enquire into the dependability of magnetos and lighting generators. Those of demonstrated serviceability, of proved reliability, are standardized on "NORMA" Ball Bearings—have their own inherent superiorities fortified by "NORMA" Bearing speedability.

Be *sure*. See that your Electrical Accessories are "NORMA" Equipped

THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust and Combination Bearings.

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Singer Auto Traffic Signal



"The Signal Success"

Hand signalling is as certain to go as hand cranking. It is unsatisfactory, undignified and UNSAFE. With all motorists realizing this and municipal governments taking the matter up, the success of the Singer Signal is a foregone conclusion. The Singer Signal is

An absolute *necessity* for closed cars and needed by all cars, especially at *night*.

For ladies who drive, the Singer Signal will be the greatest improvement since the self starter.

Merely pressing a button instantly tells oncoming and following traffic any movement you intend to make.

The Singer is perfected—rigid tests for two years have proved that it fills every signal need. It has made good with every motorist who has one, and with traffic authorities in every city where it has been shown.

Big opportunity for dealers and garage men

The Singer Signal can be put on any car. A car owner can indulge his desire for one without waiting for the new cars to come equipped with them. Here is a ready to supply business for live dealers and garage men. There is a good profit for the dealer in each Singer Signal. Remember, the first who handles Singer Signals in his section will make the most sales. Investigate at once.

General Distributors wanted:

The Singer Signal is manufactured by men of national standing in the automobile business. We want men or firms of like responsibility to act as general distributors. Exclusive territory for supplying dealers will be granted to the right party in each territory. If your letterhead does not clearly indicate business standing, time will be saved by forwarding references (preferably from your bank) as to your financial responsibility and business reputation.

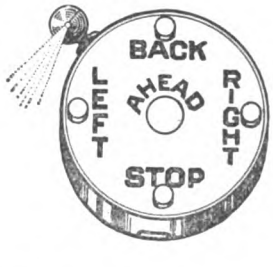
SINGER AUTO TRAFFIC SIGNAL CO.

3918 Locust Street **ST. LOUIS, MO.**



SIGNALS BOTH FRONT AND REAR

Press button on dial without removing hand from steering wheel. Your movements — to RIGHT — LEFT — STOP — BACK—are instantly flashed from both front and rear of your car. "Ahead" Signal constantly displayed except when displaced by another signal. STOP Signal (in red) automatically controlled by foot brake. Impossible to STOP or slow up without warning those behind you. Clearly readable 100 feet away, day and night. Illuminated at night. Traffic officers don't mistake Singer Signals. Pilot light flashes on when signal is displayed—proof that signal is operating. The Singer Signal is housed in two handsome enameled cases (7 x 6 in.). One front, one rear. An ornament to any car, adds to its appearance and greatly increases the safety and pleasure of driving. Operated from car battery without appreciable use of current.



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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIII New York, U. S. A., Wednesday, November 21, 1917 No. 8

War's Demands on You

What are they?

How are you going to meet them?

What have you GOT to DO?

Those who stay in business will have to get new ideas.

Why?

Because war-time business can't be run on peace-time ideas.

The government had to set up a new and different organization for war-time.

YOU MUST DO THE SAME.

You have been running your service work with men of varying ages. Supposing the army takes all your men between 21 and 31. Then what?

You'll have to get a new idea on service, won't you? If you don't you can't stay in business, can you?

YOU MUST GET IDEAS.

Each man may have a new idea.

(*Look on the next page*

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Maybe you have found yourself up against a war-time condition and have already changed your business by means of a new idea.

Maybe you have found it possible to use boys, older men and women in work that has heretofore been done by men between 21 and 31.

Maybe you have started the sale of trucks to take the place of a falling-off in passenger car sales.

If so, YOU have a new idea.

Let's pool these ideas.

Let's all turn our ideas into a common pool. You tell the other man how you have worked out war-time business measures. The other man will tell YOU how he has worked out his new ideas.

If you advance ONE idea, that is a single idea. If 99 other men advance each an idea that makes 100 ideas. And if all of them are put into a common pool that makes 100 ideas for each man to use. It is the equivalent of 10,000 working ideas.

And then let's all draw from this pool.

Out of the pool of new ideas you can draw as many as you need. We hope there will be many more than you possibly can use.

Just see what a boon it will be to thousands of those who have NO IDEAS to have a "motor trade idea pool" from which each can draw.

For example:

The Chattanooga Automobile Co. in a letter to Motor World has contributed several ideas on the labor question.

It is training its younger men for the work of men of military age.

It is training men of middle age for service work.

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It is training men for work in more than one department so that men can be shifted around if opportunity demands it.

It suggests that each garageman and dealer train his own emergency men and not hire men away from other dealers and garagemen.

Don't you see how valuable these suggestions are to other dealers and garagemen who are up against this very same problem?

Another dealer, the S. G. Davis Motor Car Co., Dallas, tells what it did when five out of its six mechanics volunteered for military service in one day.

Motor World is promoting this pool for YOU.

It is a necessary work.

There is no big, strong, national dealers' association—as there should be—to handle the matter.

Existing organizations of manufacturers and accessory people are not well equipped or qualified to do the job.

Dealers themselves would have a hard time gathering and spreading these new ideas.

So Motor World has promoted the pool.

Let's have YOUR idea.

Even if you think your idea isn't worth much LET'S HAVE IT.

You never can tell how valuable an idea is until you spread it out for the inspection of others.

And don't delay sending it in.

If you let this opportunity pass without action, and if every other dealer lets it pass without action, the thousands of dealers in the country are going to lose a great benefit.

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Failure of YOURSELF to act may mean BUSINESS FAILURE FOR SOME OTHER DEALER.

Be unselfish! Be patriotic!

This is no time for the **hoarding of ideas.**

In this emergency you must act not for your benefit but for the benefit of your fellow men.

Men are going to war for the benefit of mankind. You should enter into this pooling of ideas in the same spirit.

It is a benefit to the country to have the dealers and garagemen STAY IN BUSINESS during this trying period. **If all business fails the war will fail.**

You should help the trade STAY IN BUSINESS.

Contribute YOUR idea. Do it at once.

They'll all be published.

When the pool is ready Motor World will print every last idea in it.

It will show the whole trade all the ideas that have been contributed.

If it can add any ideas of its own it will gladly put them into the pool.

Then you will have a host of ideas to help YOU through this trying period.

No matter how big a dealer you are, no matter how small you may be, send your idea in AT ONCE.

Unless every one does his part there won't be a good pool.

We want 22,000 replies.

The question sheet for your ideas is on the next page.

Send yours AT ONCE.

Tear the sheet out NOW.

Fill it in with the pencil that is in your pocket.

Get it into the mails at ONCE.

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Fill In! Tear Out! Mail at Once!

War Questionnaire

I—LABOR

1. How many of your employees volunteered for military service?.....
   What were their positions in your employ ?.....
2. How many were taken in the first draft? .....
   What were their positions?.....
3. How many more are eligible?.....
   What are their positions?.....
4. How have you filled the places of those who have gone?.....
5. Are you using any female labor as a substitute? .....
   In what positions?.....
6. How do you plan to meet any labor shortage? .....

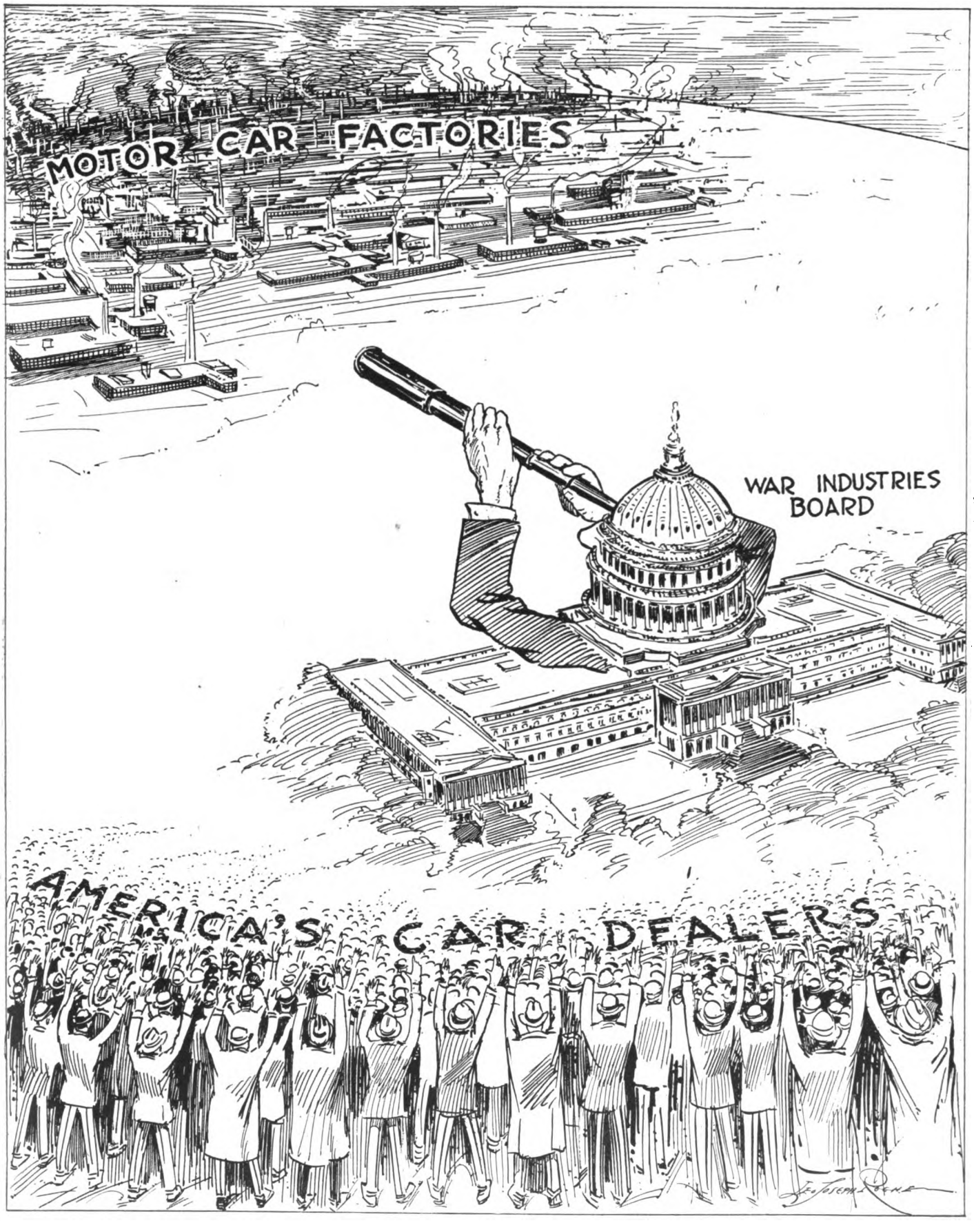
II—BUSINESS

1. Has your business increased in any departments?.....How much?.....
   What departments? .....
2. What per cent is your business below normal, if any?.....
3. What extra or new business activities have you taken on, such as tractors, trailers, farm lighting systems, trucks, extra machine-shop work, etc.?
   .....
4. Which have been most successful?.....
5. What extra or new activities do you plan to take on?.....
6. What changes in your business are you making or contemplating to meet changing conditions? .....

The address to which this should be mailed is:

MOTOR WORLD
Editorial Department
239 *West 39th Street, New York*

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Chorus of Dealers —"What About Us?"

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Two Things to Do

Every dealer should read this page and ACT for his own Salvation

This Situation Exists

THE War Industries Board, which MUST HAVE munitions, is threatening to curtail motor-car production to a dangerous degree.

It considers the motor car a *non-essential.*

If the War Industries Board carries its policy through to the extreme—as seems its intent—it will mean the wrecking of America's third largest industry. It will be wiped out.

With it will go 30,000 dealers—of whom YOU are one. And this will affect your families, your wives, your children, your mechanics and salesmen, and their wives and children. The wrecking of the industry will hit millions of homes.

It does not seem necessary.

Experts agree that the steel industry, the gasoline industry and the motor car industry have capacity for serving all needed war purposes and at the same time keeping the motor car industry pretty much intact.

But the present plan is not one of EXPANSION. It is one of RESTRICTION.

Instead of doing it this way:

1—Make munitions.

2—If there is any chance, thereafter, make cars if you can.

3—Keep your dealer organizations together if possible.

The War Industries Board is doing it this way:

1—Stop manufacturing cars.

2—Make munitions.

3—The dealers are not to be considered.

One big cause of the whole situation is the belief of the War Industries Board and much of the public that the car is a non-essential. It classes the piano as an essential and the car as a non-essential. This opinion must be corrected if possible.

1—Do This

WRITE the chairman of the Automotive Products Division of the Council of National Defense, Munsey Building, Washington, D. C. Write in your own words, but say this:

"What is to become of my family, my employees and their families, and myself if the motor car factories are shut down?

"Myself and organization have bought Liberty Bonds—many of them on time payments. How are we going to pay for these if I am put out of business?

"How can we help float future loans if the industry is wrecked?

"How can the business life of America be preserved for the good of the country if merchandising organizations are wiped out?

"Each and every one of us will give everything he has if it is necessary for the welfare of our country, but is there not some way in which we may be let to live and render our utmost service?

"Cannot the factories produce both cars and munitions?

"Is it not better to try to EXPAND the factories so they may do MORE rather than command them to curtail and thereby do LESS? Does not our national salvation—to-day and five years from to-day—depend on the degree to which we can keep America's enormous store of energy working at its maximum?

"I have ——— people in my organization. They and their families number ——— people. We want to serve our country to the height of our power and wish to know if there is any way in which our power may not be diminished.

"Will you please advise us?

"Very truly yours.

2—Do This

TAKE this page of MOTOR WORLD to your local newspapers. Let them read it. It would be well to call a meeting of all the trade in your town and have these visits to your local newspapers made by a committee so there may be no duplication of effort.

Explain to the newspapers how essential the motor car is to our national life, how many cars are used for business purposes, how necessary it is that the motor car business element in each city be not permitted to die. Ask the newspapers to adopt a new frame of mind and to help you tell the public in frequent stories and editorials that the car and car industry are essential and not a joy-riding adventure. Ask the newspapers to print this story or something along this line:

(The story to be taken to the newspapers is printed on page 41 of this issue.)

Write to MOTOR WORLD *and tell us what you do, in order that we may keep closely in touch with progress in this situation. Send us clippings from newspapers that co-operate with you in this great industry-saving plan.*

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Ohio Calls Meeting to Help Solve Dealers' War Problem

Form 1201

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

RECEIVED AT S1 1450 B'way N Y.

284B ASM 35 BLUE

COLUMBUS OHIO 12M NOV 16 1917

MOTOR WORLD

231 WEST 39TH ST NEWYORK CITY

HAVE CALLED MEETING DEC 4 5 AND 6 AT VIRGINIA HOTEL COLUMBUS ALL MEMBERS TRADE TO TAKE ACTION ALONG LINES SUGGESTED IN YOUR ISSUE NOVEMBER 7 PLEASE GIVE THIS ALL PUBLICITY POSEIBLE HAVE REPRESENTATIVE PRESENT

OHIO AUTO TRADE ASSN

325P

This telegram to Motor World from the Ohio Automobile Trade Association tells the whole story. The dealers have seen the war's demands. They are going to get together to discuss the situation and map out plans

To All Associations

EVERY assocation should consider this Ohio action. Cannot every association call a meeting of this kind? Cannot the situation be explained to ALL the dealers and every one enlisted in a concerted trade movement, along the lines outlined on pages 5 to 11 of MOTOR WORLD this week? City associations could to advantage hold meetings of the dealers in the distributing territory. It is ripe time for big action. This plan is suggested:

1—Hold a meeting of the dealers from as big a territory as possible, for one, two or three days.

2—Short opening talks—NOT MORE than 15 minutes—on "How Can We Best Serve Our Country?" The thought is that we can't serve well if our industry is unduly restricted.

3—The government situation. This speaker would tell what has happened in government circles.

4—The dealer's future. This would portray the effect government action may have on the dealer, provided the restriction is extensive.

5—The bright side of the dealer's future. Tell what dealers throughout the country are doing and can do to help solve the problem.

6—Need for changing public opinion. This would tell why dealers should and how they can tell the world that the car is NOT a non-essential.

a—Letters to prospects and owners.

b—Letters to newspapers.

c—Letters to officials.

7—Discussion. Meeting thrown open.

8—Let dealers tell what ideas they have secured from the meeting and how they are going to apply them.

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Army Class A Truck Is Mostly the B Scaled Down Two-Thirds

Internal Gear Axle a Point of Difference—Three to Be Completed by December 10

THE class A military truck differs very little from the larger model except that it has an internal gear rear axle. In other respects it is the class B chassis scaled down to less than two-thirds the weight. Three experimental chassis are to be built, orders having been placed Nov. 17 with the Autocar Co., the White Co. and the Denby Motor Truck Co. The scheduled dates for the completion of these vehicles is Dec. 10.

A new record has been set up in the production of the engine which is now being tested in Detroit. Owing to difference in size, only very few parts could be used which were identical with those of the class B engine, so a complete new set of drawings had to be made, new dies cut, new patterns made and so on. From the time this work was started till the engine was turning over in the Continental Motor Co. plant exactly 16 days 20 hours elapsed.

The power and especially the torque obtained from the motor enable it to rank with the class B as a highly successful product. At the governed speed of 1200 r.p.m. the power is 42½ hp., and at 900 the torque reaches its maximum of 198 lb.-ft.

Four Cylinders in One Block

The engine is 4¼ x 5½ in., 312 cu. in., and it differs in design from the class B mainly in having the four cylinders in one block and having mushroom tappets instead of the roller type. The detachable cylinder heads cover only two cylinders each, thus being exactly like the class B except for size. The valves are large in proportion to the cylinder bore, being 1⅞ in. measured in the clear across the port, and the timing is as follows: Exhaust opens 45 deg. early; exhaust closes 5 deg. late; intake opens 15 deg. late; intake closes 38 deg. late. The valve lift is 5/16 in. for both the intakes and the exhausts.

The manifold layout is precisely that of the class B, this having proved itself one of the best features of the larger truck. The same is true of all the accessories, ignition, generator, etc., and of the method of mounting in the frame. The crankshaft is 2¼ in. diameter, has three bearings and is otherwise like the larger job. There is an offset on the connecting rods of ¼ in., this allowing the motor to be shortened. Cooling is varied to suit the smaller engine by cutting down the height of the radiator 4½ in., using the same top and bottom cast tanks. The reduced length and height give the front of the truck a very compact look.

The clutch takes the same disks as the class B but has fewer of them—14 surfaces as against 18. It is inclosed in the same way, and the gear control with the brake lever which mounts on the bell housing is identical with the class B part.

Similarly the transmission looks just like the class B, only smaller. It has four speeds and is hung in the frame the same way, with a slight difference at the rear. The rear end of the aluminum case is machined on a circle like the face of a bell housing, and a steel forged ring is bolted thereto. On this forging are the lugs through which the frame attachment bolts pass, and also the anchorage for a transmission brake. This insures absolute concentricity between the brake and its drum, while no braking stresses can possibly be put upon the transmission case, since they pass directly from the brake-shoes to the frame via the steel ring.

Brake Lining Powerful

The brake is a very powerful one, 7 in. in diameter and 6 in. wide. It has two external shoes contracted by a cam action similarly to the brake used on the Riker truck. The shoes are easy to remove for relining and equally easy to adjust for wear. Between transmission and engine there is a universal shaft, and this is inclined a little, the transmission is tilted a little to correspond, with the object of dividing up the angularity between the two joints in front of the transmission and the two back of it in equal ratio.

The internal gear rear axle is an entirely new design. It is not heavy, the brakes are completely protected from lubricant that might escape from the gear, and the accessibility of its details is remarkable.

The weight carrying member is a pressed steel "banjo" with steel tubes forced into the ends, very much like the regular Timken passenger car axle. At each end the steel spring tables are rigidly attached, and these carry the driving pinion bearings and the brake anchorage.

Differential Easily Removable

Behind the pressed steel case is the differential, this being carried in a steel casting which is inserted from the front of the pressed steel part. This casting holds the bevel pinion and all the bearings. A light cover, removable from the back, incloses the whole assembly. The differential can be removed from the rear without disturbing the bevel pinion or the whole can be taken out from the front without tearing down the whole axle. After taking off the road wheels the drive shafts can be withdrawn, as they fit into the differential on splines.

The hub is a casting and has bolted to it by the same ring of bolts both the ring gear and the brake drum. The latter is much larger in diameter than the gear and much deeper, so it completely covers the drive. The gearing is inclosed as tightly as possible, and is nearer to the wheel than the brake. The drum has its largest diameter right in line with the join in the gear casing. being smaller on the actual brake surface, and this gives a sort of annular pocket back of the brake which would catch any lubricant exuding from the gear. A ring of holes is drilled to allow escape of any such grease or oil. Any which gets out of the gear will be flung to the largest diameter of the drum by centrifugal action, and hence it will be thrown off outside the brake.

Gear Ratios a Little Higher

Naturally the gear ratios are a little higher than on the heavier truck. The direct drive is 8.4 to 1, the others being respectively 14.3, 32.4 and 42.5 to 1. Tires are 36 x 7 rear and 36 x 4 front.

As on the class B, Hotchkiss drive is used, the rear springs being 56 in. long and the front ones 42 in. Both are divided in the center. There is a new system of spring bolt lubrication somewhat simpler than that used on the class B.

The spring eye is bushed, the shackles and brackets are also bushed and instead of the usual spring bolt a piece of steel tube is pushed in, free to turn either in the spring eye or in the shackle. This is prevented from endwise movement by a small bolt which goes right through and clamps the whole together.

On the inner end this bolt secures a plain cap, sealing the end of the tube, but on the outer end the bolt holds up a little oil box. This is a casting with a small reservoir below the level of the spring eye and there is a small splash plate above, the idea being that oil will be thrown up by vibration on to the plate, whence it runs into the spring supporting tube and so to the bearing surfaces. Overfilling the reservoir will flush the whole unit, washing out dirt and old oil.

Equipment Is the Same

There is little else about the truck which is different from the large one. It has all the same equipment, the same fuel feed from a dashboard tank, the same steering, scaled down of course, the same frame design. It will not have the four-man seat, only two men being carried. The wheelbase is 144 in.

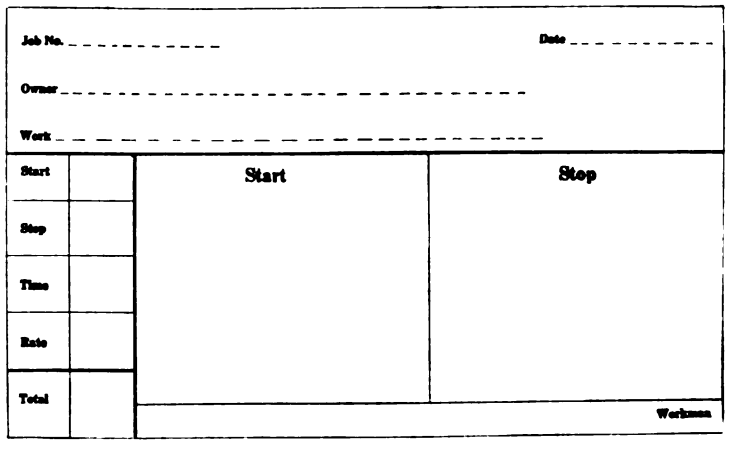
The work of the design has been carried out under the direction of General Baker by B. B. Bachman, chief engineer the Autocar Co.; E. E. Wemp, chief engineer Denby Motor Truck Co., and A. J. Scaife, chief engineer White Co. For the detail working out of the engine W. A. Frederick, Continental Motors Co., was responsible.

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Job Time Card Is Accurate Labor Record

Prevents or Minimizes Errorsand Misunderstandings in Shop and with Owners Regarding Work Done

Price: 500, $3.50; 1,000, $6.50



Each time a man starts a new job he makes out one of these and stamps it in the space marked "Start." When he has finished that job he stamps it in the "Finish" space. The elapsed time, the rate and the total charge are placed at the left. If there is no time stamp, then only the space at the left is used. These slips may be used for entering the labor charges recorded on the back of the Repair Order form

THE time each workman spends on each job must be accurately recorded or endless trouble will be experienced with customers. The system must not only be simple and easy to operate both from the shop and accounting department standpoint, but it must be such that carelessness or dishonesty on the part of the workman can be readily detected.

The form shown on this page, which is known as a Job Time Card, meets these requirements ideally, although it is not the only form which may be used successfully. It is printed on heavy paper stock and may be used with or without a time clock. Every shop, however, should have a time clock of some sort. It is the only way to minimize errors.

Each time a man starts on a new job he makes out one of these forms and stamps it in the space marked Start. When he has finished the job he stamps it in the Finish space. The Elapsed Time, the Rate per Hour and the Total Charges are placed at the left. If there is no time stamp then only the space at the left is used. These slips are collected at the end of the day and turned over to the bookkeeper. If the Repair Order form described in the Oct. 10 issue of Motor World is used then the labor record on the back of the form is made up from them.

Foreman's Job

Although the workman himself may make out these slips it is better to delegate this job to the foreman or in a larger shop to a timekeeper so that there will be no chance for either intentional or careless mistakes to occur. When the foreman assigns a man to a job one of these slips is made out and the starting time put on it, and when the job is finished the latter informs the foreman and the stopping time is recorded.

There is space at the top of the card for the job number, the owner's name and the work. The job number is necessary so that the cards may readily be filed with other forms with the same job number. The owner's name is also desirable so that everyone knows just exactly who the work is being done for. The character of the work being done should be recorded on this form so that this information is readily available for entry on the back of the Repair Order form.

Unless a rigid system is employed in keeping the time in the shop much dissatisfaction will arise among owners. One owner may be charged for more time than was put on his car and possibly the next owner will be charged for less.

The necessity of not only keeping an accurate time record but also having it under the supervision of the foreman is due to the fact that a workman may record his time so as to favor some owner friend of his on whose car he is working. For example, if he starts the day on Tom Jones' car, working on it till 11 o'clock, and then begins on Henry Smith's machine, spending the rest of the day on it, if Henry Smith is a friend of his he may record that he worked on Tom Jones' machine from early morning until half-past one, thus increasing the time on this job an hour and a half and decreasing the time on Henry Smith's car by the same amount.

One of the greatest advantages of such a card is that gives a detailed and practically indisputable record of what has been done on the car. In case an owner questions the amount of labor or claims that more time than necessary has been spent on it, all the Job Time slips may be brought out and he can be shown in detail that one mechanic spent so much time grinding the valves, for example, and another mechanic spent a certain amount of time adjusting the carbureter and so on.

Subtract Time Out

If a workman is on a certain car and is called away for, we will say, one hour to do some other work, he should stamp his job time card when he leaves and make out a new one when he returns. In case the interruption is so unexpected that this cannot be done, the amount of time out should be noted on the face of the card. The foreman or timekeeper should be responsible for this but, whether either of these men are or the workman is, the fact should be definitely recognized that someone must be responsible and this person should be held accountable.

The advisability of using a time clock is so obvious as to hardly require any explanation. In the first place it eliminates errors in noting the time by hand —the clock may be read incorrectly or figures may be set down improperly either purposely or unintentionally or the figures may be indistinct. With a time clock in good order all these troubles are avoided.

Prices

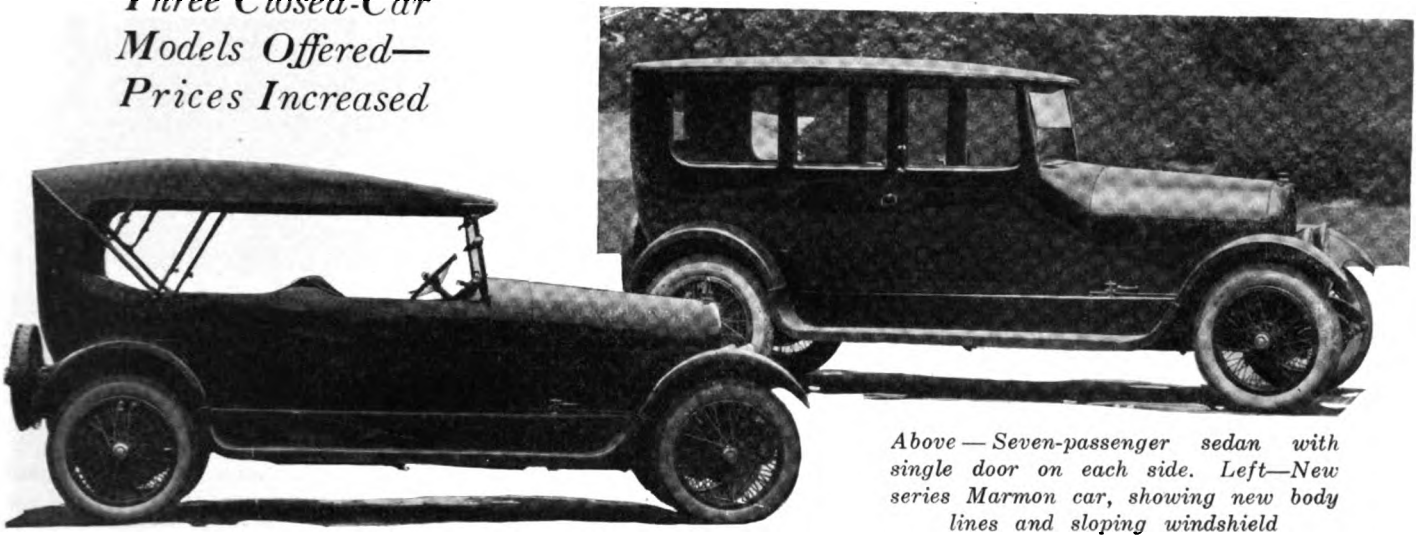
Prices of forms brought out in the past few weeks are given below, as well as brief information of each form and the date and page of issue when it was described and illustrated. All prices include delivery. All forms are standard size to fit files. Binders for the Repair Order, Requisition, and Purchase Order cost $2.25 each.

Form	Issue	Page	Material	Size	Remarks	Quantity	Price
Inventory Card	Oct. 17	14	Card	5 x8		100	$1.50
			Card	4 x6	Both sides	1000	13.50
Prospect Card	Oct. 24	10	Card	4 x6		500	4.00
						1000	7.50
Repair Order	Nov. 7	12	Paper and Manila	6 x9	Triplicate	1000	25.00
						2000	37.50
Workman's Time Card	Nov. 14	38	Manila	3¼x5½		1000	4.50
Job Time Card	Nov. 21	14	Card	4 x6		500	3.50
						1000	6.50
Requisition	Nov. 28		Paper	5 x8	Duplicate	1000	9.00
					Triplicate	1000	13.50
Purchase Order	Dec. 5		Paper	5 x8	Duplicate	1000	15.00
					Triplicate	1000	22.00
Casing and Tube Record	Dec. 12		Card	4 x6	Both sides	1000	7.50

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Marmon 34 Has Many New Features

Three Closed-Car Models Offered— Prices Increased



Above — Seven-passenger sedan with single door on each side. Left—New series Marmon car, showing new body lines and sloping windshield

THE new series Marmon is quite similar to the 1917 series. All of the most important features, such as the aluminum engine, the special frame and runningboard construction and the graduated rear cross springs are retained, but numerous changes have been made in details. The new series will also be known as the 34, this designation being based on the S. A. E. engine rating.

The outline of the rear seat has been changed somewhat, the inclination of the rearmost part of the top line having been reduced. Formerly the front seat was semi-divided, but the division has been eliminated and the front seat is now a plain double seat. The windshield, instead of being straight, now slopes backward at an angle of 10 deg., and the mounting extends down inside the cowl to the frame channels.

Plain Bearing Fan

A change in the engine design has permitted of dispensing with the sheet metal side plates on both sides. These covered openings in the cylinder jacket and in the valve rod chamber respectively. The cylinder block is now cast without these openings. The Marmon company is now manufacturing the radiator fan itself, and instead of the ball bearing fan a plain bearing fan has been adopted.

The fan hub is in the form of a drum which forms an oil reservoir. A sort of cam is secured to the stationary shaft and the fan hub in its revolution carries the oil around to the upper side of this cam against a wall or dam thereon. Just in front of this dam there is a drill hole to the center of the shaft. The shaft is drilled axially and radial holes place the center hole in the shaft in communication with the two bearing surfaces of the fan hub. Hence a comparatively large supply of oil can be carried in the hub and oil is constantly fed to the bearing surface. The thermostat formerly supplied as regular equipment has been dispensed with and instead a moto-meter is now fitted. The thermostat can be supplied, however, on special order.

MARMON SPECIFICATIONS

Price—	
Touring, 7 Pass.	$3,550
Touring, 5 Pass.	$3,500
Roadster, 4 Pass.	$3,550
Limousine	$5,250
Sedan	$4,950
Landaulet	$5,350
Town car	$5,250
Make of Motor	Marmon
Number of cylinders	6
Shape	I-head
How cast	Block
Bore	3¾
Stroke	5⅛
S. A. E. horsepower	33.75
Magneto	Bosch
Starting and lighting	Bijur
Clutch	Cone
Gearset	3-speed
Tires (open models)	32 x 4½
Tires (closed models)	33 x 5
Wheels	Hayes wire
Type rear axle	¾ float

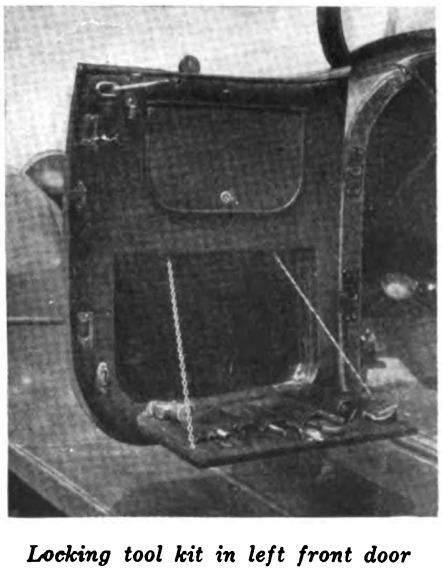
Bijur electrical equipment will be regular equipment. The starting motor is held in place by a strap fastening and is directly geared to the engine flywheel by the new Bijur screw shift drive. The Bosch magneto is retained for ignition and is driven through the Bijur generator.

Vacuum Controlled Oil Feed

A feature that is not absolutely new but was introduced during the latter part of the past season is a vacuum control of the oil feed. The lubricating system is generally adjusted in a new engine to give an oil pressure of 15 lb. per square inch on the bearings. When the engine is throttled very low this results in a much greater oil supply to the bearings than is actually necessary, with the result that there is a tendency to carbon formation and waste of oil. This has been overcome by the provision of a vacuum-operated valve, which, when the vacuum in the intake manifold exceeds a certain value, opens a by-pass in the lubricating system, so that only the pressure due to a head of less than engine height remains on the oil.

Oil Supply

Oil is supplied through filler on top of the engine and passes down around the valve push rods into a large capacity cast aluminum oil pan, which is cooled by ribs along the base. From this oil sump oil is drawn through a gauze strainer into the gear pump at the rear of the camshaft. This pump delivers oil into the distributing pipe under pressure, the amount of pressure being indicated by a gage. By means of a vacuum valve this pressure is automatically reduced at low engine speed.



Locking tool kit in left front door

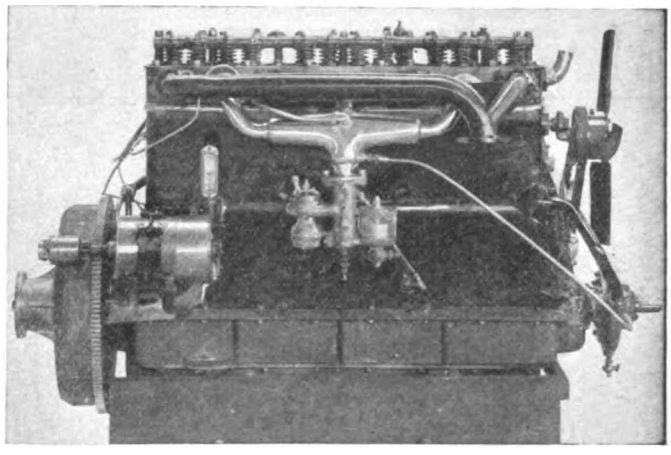
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The upper part of the valve chamber communicates through a small pipe with the inlet manifold. Within the chamber of the vacuum valve there is a piston which is forced downward by a spring above it. The suction in the intake manifold, however, tends to lift the valve, and when it becomes sufficiently great to overpower the spring the valve is lifted and communication established between the delivery side of the oil pump and the oil sump. This removes all pressure from the oil system, except that due to the head of oil determined by the highest point of the by-pass line.

Oil is conducted from the main distributing pipe to the center of each of the four main crankshaft bearings. A circular groove around the bushing is thus filled with oil under pressure, from which it spreads over the whole bearing surface. Oil is also forced into the hollow crankshaft and through it to the crankpin bearings. The throw-off from the crankshaft lubricates the cylinder walls and piston pins. The maximum pressure in the main feed pipe is limited by a ball check valve which is adjustable without removing the engine cap. The excess oil passing through this check valve circulates through the hollow rocker arm shaft, lubricating the valve rockers and contacts. Oil which escapes from this shaft flows down along the valve push rods into an oil container above the valve tappets, cams and camshafts, thus providing a constant head of oil for these and also for the camshaft gears.

Change in Clutch Throw-out

A change has been made in the design of the clutch throw-out, which is now provided with a felt washer soaked with oil. The ball ended change gear lever is now provided with a lock to permit of locking it in the neutral position. The key is also used for locking the tool compartment in the left front door. A single key is now required with the car. Tools are held in pockets on the door of the compartment, which swings downward and is held in a horizontal position by chains.

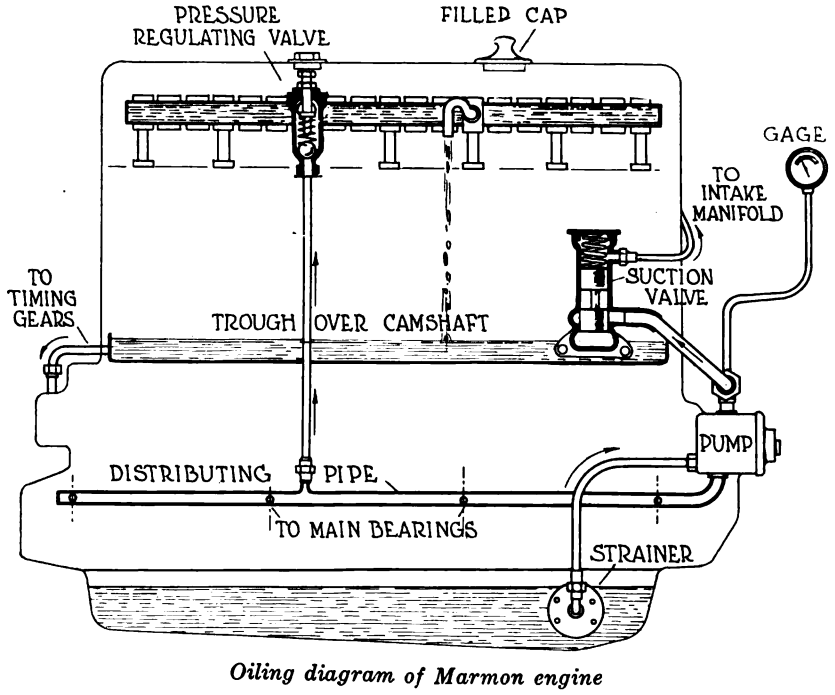


New Marmon engine with valve cover removed, showing the cylinder block without side plates, the plain bearing fan with oil reservoir and the Bijur starter

A new lighting switch is fitted to the instrument board. In what may be referred to as the neutral position, all lamps are off, but if the key is turned down the magneto is "on" and the engine can be run. In position 1, the horn, tonneau light and instrument light are on; in position 2 the dimmer and tail-light are on, and in position 3 the headlight and tail light are on. The switch can be locked in any position. The tonneau light is a new item of equipment. It lights automatically by a door switch when the right rear door is opened, but it can also be lighted up by means of a push switch on the light itself.

The gasoline tank is in the cowl, but in order to prevent gasoline fumes getting into the driver's compartment, a magnetic type of gage has been adopted, which permits of completely sealing the tank, except for the vent, and this is carried down under the hood to a point below the body.

The speedometer trip set is now underneath instead of adjacent to the instrument. The top has a French plate glass window in the rear which is hung by belts. Hayes wire wheels will be used, the coming standard tire sizes being 32 x 4½ on open models and 33 x 5 on closed models.



Oiling diagram of Marmon engine

Three New Closed Car Models

Considerable attention has been paid by the Marmon company to closed car models, of which three types are furnished, viz., limousine, sedan and town car. In the limousine there is room for five passengers in the enclosed compartment. The auxiliary seats fold forward when not in use. The general design of the body has been greatly improved. The town car is the same as the limousine, except that the roof does not extend over the driver's compartment. However, provision is made for protecting the driver when it is necessary.

The sedan accommodates seven passengers. It has two wide doors, one on each side, and the front seat is entered through an aisle between the seats. The back of the right front seat folds forward to afford freedom of movement in the car. Though the sedan is non-convertible the windows can be lowered.

To Furnish Custom Bodies

In addition to standard bodies the Marmon company is in a position to furnish cars with special designs of closed bodies by Rubay at the following prices: Limousine, $5,750; town car, $5,700. For the benefit of those who may wish to have bodies built to their own specifications, the Marmon company offers the chassis without body, with instrument board and instrument fitted, and with front and rear fenders, hood, starting and lighting systems, lamps, standard chassis equipment, tools, etc., at $3,200.

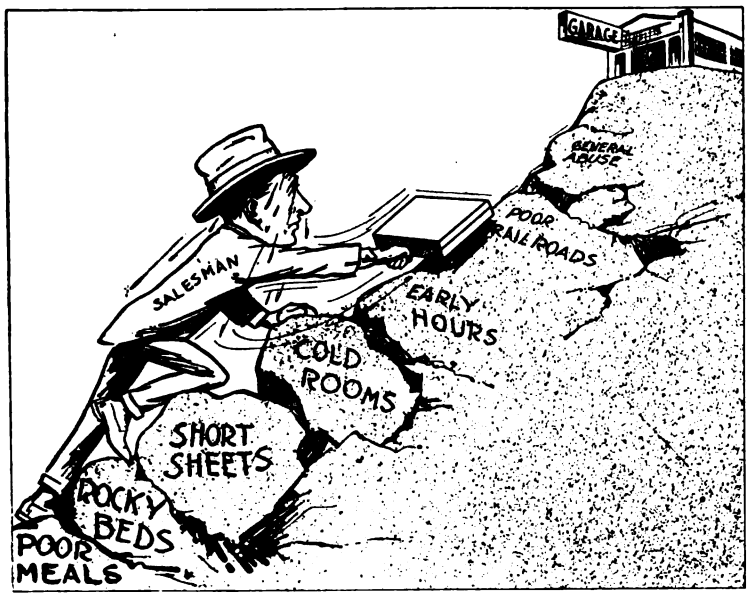
Columbia Adds a Trailer Outfit

PONTIAC, Nov. 19—The Columbia Motor Truck & Trailer Co. has brought out a 6-ton tractor and semi-trailer outfit comprising a Columbia 2-ton truck with a shortened wheelbase of 114 in. and a two-wheeled semi-trailer with 36 x 6 solid rubber pressed-on tires. A Martin rocking fifth wheel is mounted on the rear of the tractor to carry the front of the 16-ft. trailer. In addition, the company will bring out for the 1918 trade a four-wheel, 4-ton reversible trailer. The 2-ton truck is continued without change but the price has been increased from $1,750 to $1,950.

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Give the Traveling Man a Fair Show

By Ray W. Sherman





"WELL! Well!" Reilly, after waiting ten minutes, walked into Ben Doyno's office. The supplyman had just disposed of the last of a string of salesmen and again lighted the morning cigar.

"What's the well-well stuff?" puffed Ben.

"Do you have a salesmen's parade like this every morning?"

"Not every morning," replied Ben. "This just happened to be a busy morning. At that, the jobbers seem to be plugging pretty hard after business these days, and their road boys are drilling around pretty persistently."

"Must take up a lot of time, doesn't it?"

"Oh—yes—it does take time," replied Ben, "but I can hardly afford not to see these boys. I always get something worth while in the way of an idea and sometimes they have goods I really need, once they get a chance to show me my need. Also——" Ben turned and faced the car dealer, "I figure that each of these boys is entitled to a hearing."

"Yes, I guess you're right."

"I KNOW I'm right! I used to sell goods myself!" asserted Ben. "No man ever gets a nasty turn-down in my place. His hearing may be short—but he gets one."

"That's a nice attitude," was the Sennett dealer's comment.

"It's the RIGHT attitude!" declared Doyno. "And," he continued, "it isn't the right thing to do to consider the salesman a pest and an intruder. He is entitled to respect at least. I have had some experiences in my time that have made me feel differently toward salesmen than a lot of people feel.

"I have pounded the road, Reilly, and gone up against these nasty buyers until I would have liked to poison a few of them. Some of them lack common decency. They haven't the first instincts of gentlemen. Being turned down is one thing; being kicked out is another.

"I have gone into salesrooms and garages with my line and, having found the proprietor or buyer, have had him curtly turn his back on me and walk away. One of them said one day: 'Nothin' doin'. No time to monkey with you pests. Get out of here and stay out!' I guess he even cussed a little. Seared as I was with the hard work of the road that hurt me. It made me sore.

"I went in to see another man one day and told him who I was. He said: 'Well! What do you want? What do you want? Shoot quick!' I have stacked up against all kinds of them from the good to the bad extremes. After a while I got so I simply did my best with the bad ones, thanked God for the good ones and kept covering my territory as best I could.

"The salesman isn't a pest, Reilly. He is the fine mesh work that holds the fabric of the trade together. Without him there wouldn't be any trade. And as long as goods are sold by salesmen the salesmen will have to make trips around the country just as they do now calling on business people—dealers and garagemen.

"And as long as they make these calls they should get civil treatment. How could any of us do business if there were no salesmen? Don't we all buy our goods through salesmen? Don't we, both buyers and sellers, depend on them for the very life blood of our trade?

"If one of these garagemen who has practically kicked a salesman into the street were to walk in the door of the salesman's jobbing establishment the garageman would not feel so much like kicking people around. He would be almost apologetic and would have a lot of respect for the men who had built up the big jobbing business. But he has no respect for the jobbing salesman.

"There probably are three things that bring about this disrespectful frame of mind on the part of the garageman or dealer. He may have been bothered by a string of salesmen until he felt that he would have to shoot the next one that showed up. He simply lost his temper.

"Or, the salesman's customer may be a man of somewhat haughty and overbearing characteristics. He may be one of those people who like to take advantage of every bit of authority and dominance they can obtain.

"This type of man doesn't know that a broad mind is essential to a big broad business. He has an idea that the mark of bigness is a loud voice.

"The only other excuse I can think of is that the man may be ignorant—plain ignorant. He may never have known what it means to be a gentleman. He's just a boob.

"Heaven knows, Reilly, the salesman has trouble enough without my adding to his burden of life. He eats bum meals, sleeps in rocky beds, curls up under short sheets, shivers on thin mattresses, crawls out early in the morning, stays up late at night, rides in stuffy day coaches, lugs a heavy sample case, gets all sorts of abuse and is supposed to keep bobbing up with a smile like a cork in water.

"The man who can do that is a bird. He has my admiration. It does me good to look at him. Even if I don't buy anything I always try to make ONE smooth spot in every salesman's day. I know what it means."

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Repairshop Shortcuts

From The Motor World Roadman

No. 1444—BELT REPAIR CLAMP

It is not an easy matter to hold the two ends of a broken belt together while a repair is being made unless a special clamp is at hand. A simple clamp for this purpose consists of four blocks of wood, bolted together in pairs, each pair being clamped onto an end of the belt and then drawn together by two holding bolts. By this the ends of the belt may be drawn together and the hooks or lacing put in place. The clamp also facilitates cementing the ends together, and is left in place until the cement has hardened.—J. S. Perkins, Dodge Brothers, Pittsburgh.

No. 1445—TOP SUPPORT

It is often desired to paint or repair a top without leaving the car in the repairshop. A simple support that permits this is a rectangular wooden framework notched to hold the top irons. The top is placed on this framework.—J. S. Perkins, Dodge Brothers Service Station, Pittsburgh.

No. 1446—PISTON RING CLAMP

Replacing pistons is made easier with a piston clamp that can be locked in the compressed position. The usual steel band clamp provided with handles is used, a slotted locking piece being slipped over the handles. This, when pulled out, squeezes the handles together, contracts the ring and locks it.—J. S. Perkins, Dodge Brothers Service Station, Pittsburgh.

No. 1447—SHOP CREEPER

Comfort and utility may be incorporated in the common shop creeper by the addition of a padded rest for the workman's head and a curved tray in which tools may be carried. This creeper may be built from 1 by 2½-in. hardwood strips bolted to 2 by 3-in. cross pieces and mounted on casters. The tool rests are simply V-shaped troughs. Part of the padding from an old seat may be used for the head rest. It should be high enough to hold the workman's head in a natural working position.—Federal Motor Truck Co., Detroit.

No. 1448—MAGNETO TESTING

After cleaning and overhauling a magneto it is good practice to clamp it to the bench and drive it by some outside source of power to determine whether the spark generated is as it should be. This may be seen at a glance by bringing the distributer wires to metal spark gaps arranged around a central return wire on a panel. The gaps are approximately 1/32 in.—Dodge Brothers Service Station, Pittsburgh.

You Can Help

WE know that you have at least one Repairshop Shortcut in your shop. Why don't you drop the editor a line and let him have a drawing made and print it on this page? Never mind how rough your drawing is; we can have it redrawn if necessary. A post-card will do.—EDITOR.

No. 1449—PORTABLE WELDING OUTFIT

The welding outfit may be carried to any part of the shop on a portable bench carrying all the necessary tools for the work together with the various tips, torch and fire extinguisher.—J. S. Perkins, Dodge Brothers Service Station, Pittsburgh.

No. 1450—TESTING STARTING MOTORS

After repairing a starting motor, it is advisable to test the amount of torque it develops to see that it is in good condition. This may be done by clamping a torque arm to the driving gear and determining how many pounds pull the motor develops when current is applied to it. On the average starting motor, with a 12-in. arm, 18 lb. on the scale shows the motor to be in good condition. However, the pull that any motor in good condition should develop may be easily determined from the pull developed from another motor of the same design in good condition.—Dodge Brothers Service Station, Pittsburgh.

No. 1451—DODGE ENGINE SUPPORT

On Dodge engines the rear supporting arms are integral with the clutch and gearbox housing, hence when the housing is removed there is nothing to support the rear end of the engine. It is the usual practice to place a block beneath the car, but in this condition the car cannot be moved. By holding the engine up with a wooden framework that rests on the car frame and is attached to the rear cylinder-head bolts, the flywheel and gearbox housing may be removed without further trouble.—J. S. Perkins, Dodge Brothers Service Station, Pittsburgh.

No. 1452—PISTON RING JIG

After once being cut to shape and slotted, it is difficult to provide any means of holding a piston ring so that further machining may be done. Yet this is necessary if the ring is over-size to make a correct fit. A jig permitting this must do two things: First, contract the ring until it is round, and, second, hold it in that position from each side. Such a jig is illustrated. The contracting ring is first slipped over the piston ring, after which it is pinched between the jaws and the contracting ring removed. The piston ring may then be machined or ground with assurance that it cannot be distorted.—C. F. Mohr, Pierce-Arrow Service Station, Pittsburgh.

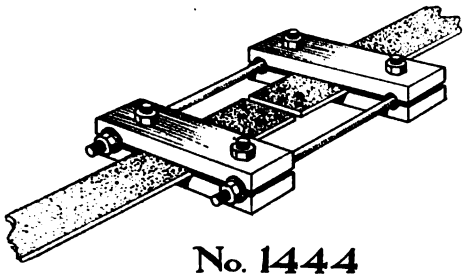
No. 1453—WINDSHIELD STANCHION CLAMP

On Dodge windshields the hanger supporting the top glass to the stanchions is fitted with a stiff coiled spring which makes replacement of the parts difficult. Often two men will work for some little time before the parts can be assembled unless a special tool is at hand. Such a tool comprises a collapsible clamp that may be caught behind the stanchion and forced down between the washer and the spring, permitting the lock-nut to be easily replaced.—J. S. Perkins, Dodge Brothers Service Station, Pittsburgh.

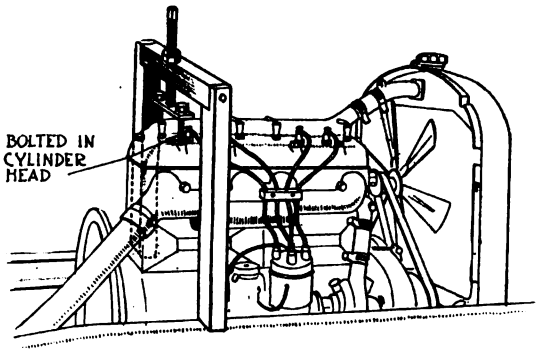
No. 1454—CLEANING BATTERY TERMINALS

Storage battery terminals often become corroded and cause either a poor connection or stop the passage of the current entirely. When this is the case all corrosion may be quickly removed by the application of a solution of common baking soda and water. This solution should be made by dissolving one spoonful of the soda in half a glass of water, and it is applied with a brush or cloth.—Lee Cuson, Motor Mart, Detroit.

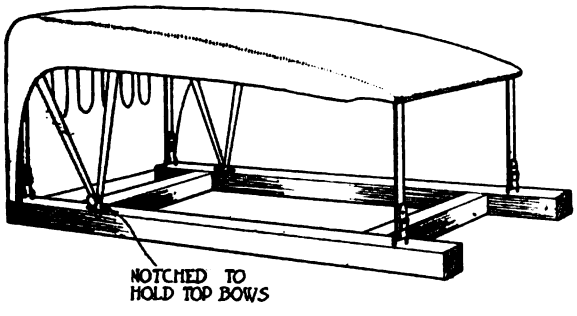
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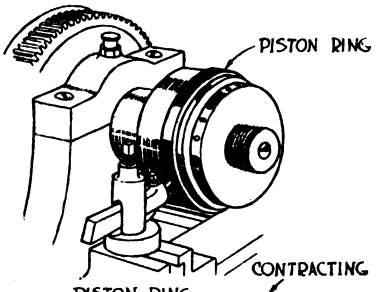
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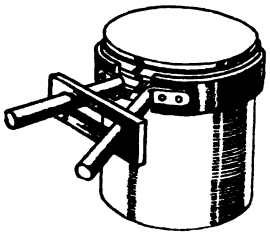


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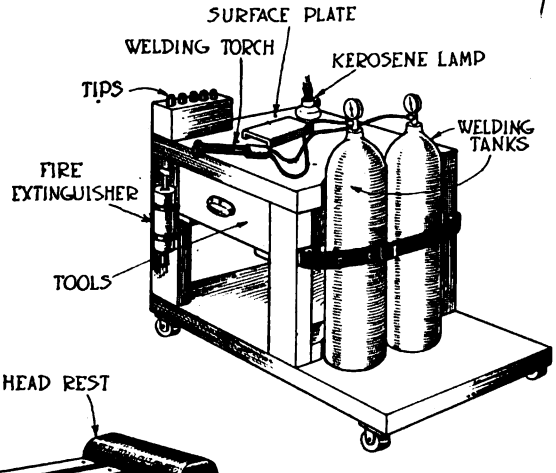


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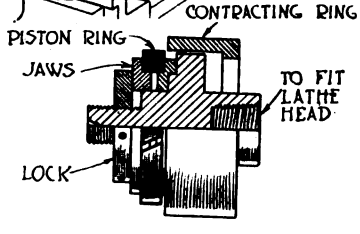




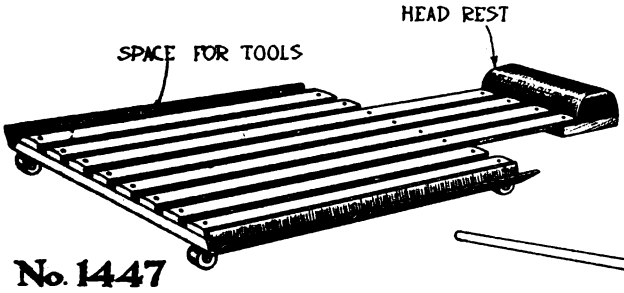
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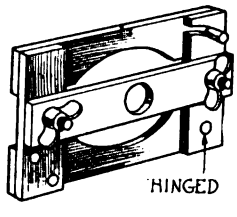
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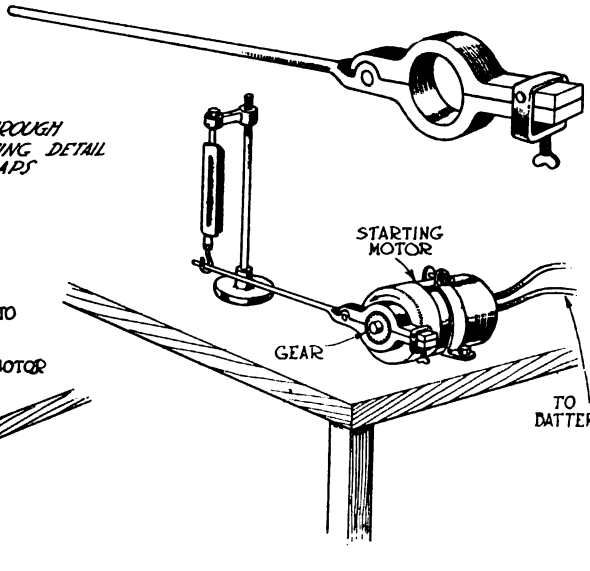


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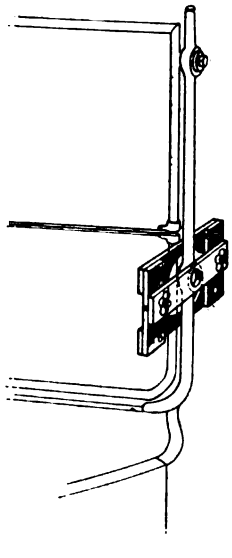


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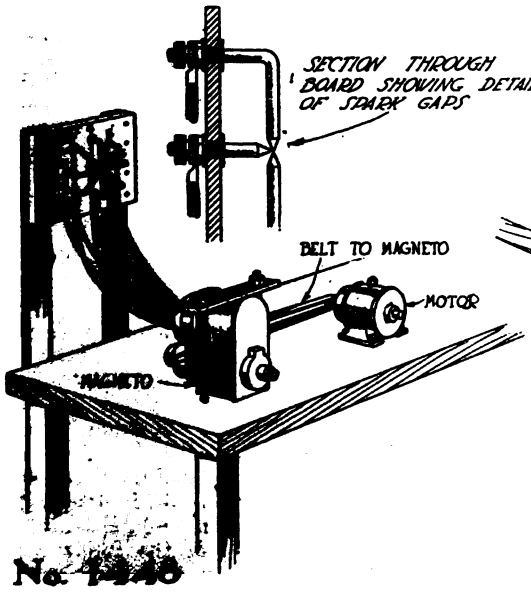




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A Department of

BETTER MECHANICS

No. 44

Installation and Repair of the Stewart Vacuum System

By S. T. Williams

THIS is the second of a series of articles to be published in Motor World dealing with the installation of standard accessories. The articles will contain complete instructions to help the repairman to do his work properly. The third article will appear shortly.

THREE points must be observed when installing a Stewart vacuum system in order to assure correct operation. They are:

1—That the top of the tank is above the level of the gasoline in the main supply tank, even when the car is descending a steep hill.

2—That the bottom of the tank is at least 3 in. higher than the carbureter.

3—That the tank is not installed over any electric equipment or terminals on which gasoline could leak, and cause a fire.

Replacing Pressure System

The tank should be installed on the engine side of the dash beneath the hood, but if this is not possible, it may be placed on the driver's side of the dash. The following are the steps in sequence in installing the tank:

1—Attach the tank to the car, observing the precautions given above.

2—Disconnect the original gasoline tubing from the carbureter.

3—Remove all water traps or filters in the gasoline line. The bottom of the Stewart tank forms a pocket for sediment or water, and renders these unnecessary.

4—Disconnect the original air pressure tubing from the air pump, but allow it to remain connected with the main gasoline tank.

5—Drill a ⅛ in. hole in the gasoline filler cap.

6—Screw the couplings into the top and bottom of the tank, making sure that all joints are tight.

7—Tap the intake manifold as near as possible to one of the cylinder intakes, *but not through a water jacket.* Screw one of the couplings into this hole, making an air-tight joint.

8—Cut a length of the tubing supplied with the tank long enough to connect the manifold coupling with the top of the vacuum tank as shown in Fig. 1, and connect the two.

9—In a similar manner connect the bottom of the tank with the carbureter.

10—Connect the top of the vacuum tank with the feed line.

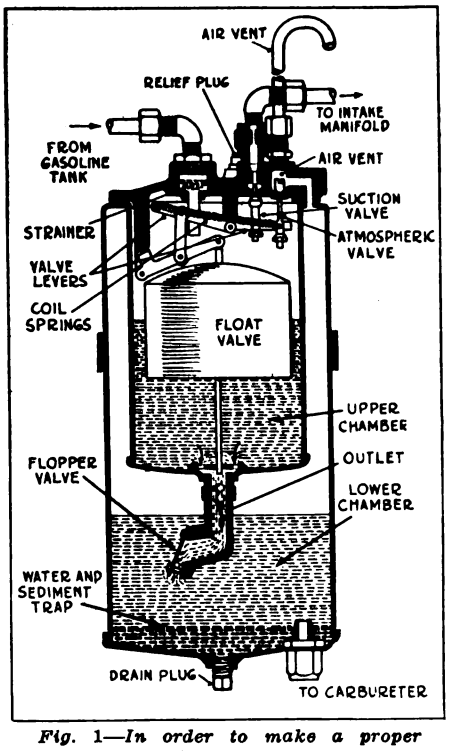


Fig. 1—In order to make a proper installation of the Stewart vacuum tank, it is essential that the mechanic have a thorough understanding of the construction of the equipment

The proper connections are shown in Figs. 1 and 2. Where it is necessary to bend the tubing, the bend should be gradual, so as not to kink the tube, and restrict the flow of gasoline or air through it.

Replacing Gravity System

Two additional points must be observed when the vacuum tank is to be used on a car formerly having a gravity feed system. They are:

1—The air vent must be placed as high as possible beneath the hood, as shown in Fig. 3.

2—The top of the vacuum tank must be placed higher than the lever of the top of the gasoline tank—the higher the better.

Care and Repair

After the system has been installed, it may be necessary to readjust the carbureter, especially if the tank replaces a pressure feed system. The vacuum feed should show the same rate of consumption as the gravity feed, and an increased consumption in this case may be from "Vent Tube Overflow," or from "Gasoline Leakage."

If the engine gallops, speeding up when the vacuum tank is drawing gasoline from the main tank, either the mixture is too rich, or the connections are so loose that air is being drawn into the intake manifold. No perceptible change

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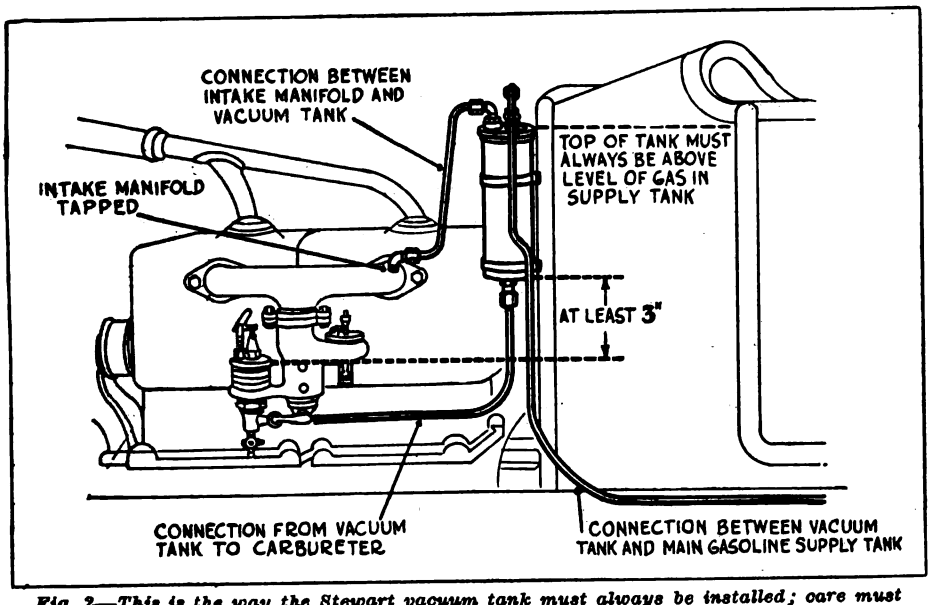


Fig. 2—This is the way the Stewart vacuum tank must always be installed; care must be taken to see that the tank is the proper height and the connections are made as shown in this drawing

in engine speed should be noted when the tank is operating correctly.

Vent Tube Overflow

Occasional overflow from the vent tube is not serious, but regular overflow is dangerous and wasteful, and should be stopped. One of the following is usually the cause:

1—The air hole in the main filler cap is either too small, or else is plugged up.

2—The vaccum tank may be mounted too close to the engine, heat causing the overflow. The remedy is to carry the overflow up to the highest point beneath the hood, as shown in Fig. 3, or else to set the tank away from the engine a few inches.

3—The bottom of the tank may not have been installed at least 3 in. above the carbureter, as directed.

4—If a pressure system was formerly used, the air pump connection may not have been disconnected.

With the exception of the vent tube, the only other places leaks can occur are through a hole in the outer wall of the tank; or through the carbureter connection or tubing.

To Test the Vacuum System

If the engine does not operate properly, and the vacuum system is suspected, it may be quickly tested by:

1—Removing the inner vacuum tank, and leaving only the outer shell which then serves as an auxiliary tank. In removing the top of the tank, the screws are first removed, and a knife blade run around between the cover and the body of the tank, separating the gasket so that it is not damaged.

2—Partially fill the outside tank with gasoline, and crank the engine. If the engine still fails to operate, the vacuum system is not at fault. On the other hand, if the engine then runs all right, the system should be examined to find the difficulty.

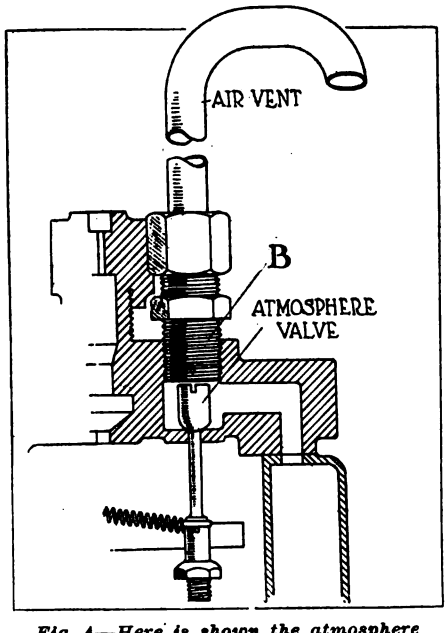


Fig. 4—Here is shown the atmosphere valve and the vent

Causes of Faulty Feed

A leaky float is indicated by the engine choking, as the float becomes too heavy to rise and close the vacuum valve, and permits gasoline to be drawn into the manifold.

Whether this is the case may be quickly determined by removing the top of the tank, and taking out the float. However, the leak may be so small that it is difficult to locate, and make the necessary repair.

Repairing Leaky Float

1—Place the float in a pan of hot water. Bubbles will mark the point of leakage. Scratch an X-mark intersecting at this point.

2—Enlarge the leak by drilling and drill another small hole at the top or bottom of the float, Fig. 5, and drain all of the gasoline from it.

3—Using as small an amount of solder as possible, solder up the two holes. If an excess amount of solder is used, the float will be too heavy for proper operation.

Care should be taken in doing this work not to bend the float guide. When this has been done, the action will be the same as when the float leaks—namely, the float cannot rise, and close the vacuum valve, and gasoline is drawn into the intake manifold, choking the engine.

When on the road, or for a temporary repair, the effect of a leaky float may be overcome by removing the plug shown at the top of the tank in Fig. 1. Ordinarily enough suction remains to draw gasoline into the vacuum tank, but if not, the plug should be replaced until the tank is full, then removed, and the operation carried on until a repair can be effected. The car should run from ¼ to ½ mile between each operation.

Intermittent Operation

An obscure cause of intermittent engine operation is that in installing or in working of the system, the bushing B over the atmosphere valve is screwed down too far, preventing the atmosphere valve from operation. When this has happened the engine will run for a few

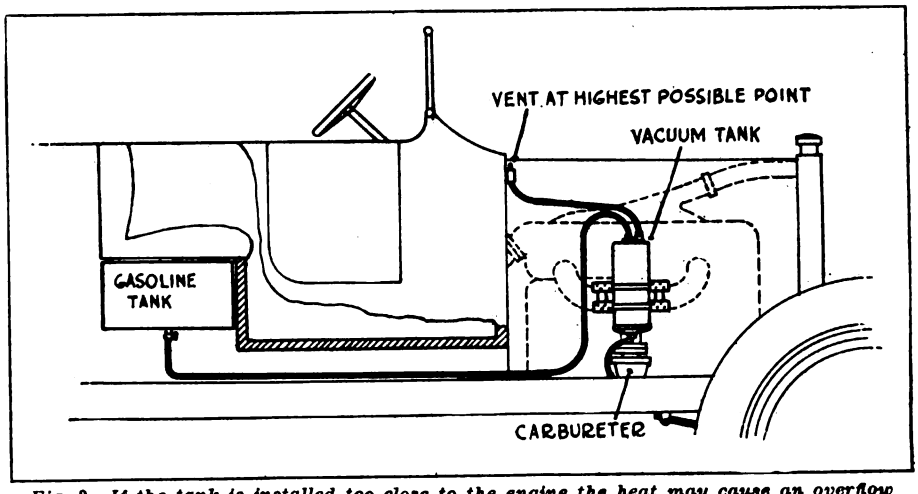


Fig. 3—If the tank is installed too close to the engine the heat may cause an overflow at the vent. The remedy is to raise the end of the vent as high as possible

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minutes and then backfire and stop. After a minute it will start easily, only to repeat, as the gasoline cannot feed to the carbureter when the engine is running. The remedy is simply to turn back the bushing until the atmosphere valve can open.

Tank Inoperative

The vacuum system will be thrown out of operation if a particle of dirt lodges beneath the flapper valve, shown in Fig. 1. The test for this is to remove the tubing from the bottom of the tank, connecting it with the carbureter, and start the engine. When one finger is placed over the air vent, and another over the opening at the bottom of the tank, continuous suction indicates that there is either a leak in the connection between the tank and the main gasoline supply or else that the flapper valve is stuck open.

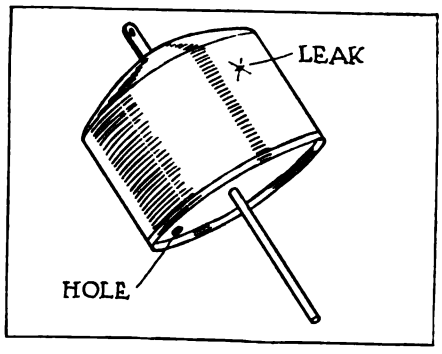


Fig. 5—In case of a leaky float the hole should be slightly enlarged and another drilled, to drain the gasoline. Then the holes should be soldered

Dislodging Dirt

By striking the side of the tank with the flat of the hand any dirt beneath the valve can usually be dislodged. If not, it will be necessary to remove the tank cover and lift out the inside tank.

Three other things can cause a tank to be inoperative. They are loose manifold connection, plugged tubing or dirty gasoline strainer. The position of the strainer is clearly shown in Fig. 1, and it should be examined first.

How to Wash a Car

1—The time to wash a car is when it comes in, before the mud has had a chance to harden and dry. The heat in the car dries the mud quickly, and bakes it onto the paint.

2—If it can't be washed immediately, rinse it off thoroughly anyway.

3—When washing, never rub a sponge or chamois or cloth over the surface until all the mud has been removed.

4—First soak all the mud down, by going over the car with a hose. A nozzle should not be used. The stream should be large with low pressure.

5—Start at the top, and work down. Then you only have to remove the same mud once.

6—This first going over loosens the dirt, so that a second going over will usually remove it all. In case it does not, a soft sponge constantly saturated with water may be used, just touching the surface, not rubbing it.

7—After the removal of the mud, several greasy places may be found. Using an old chamois, and a good automobile soap, wash off the grease. Ivory soap is excellent for this purpose. No traces of soap should be left on the body of the car.

8—Rinse the car thoroughly.

9—Wet a good clean chamois, wring it dry, and go all over the car body, wiping it dry. Never wipe the body with the same chamois that has been used on the running gear.

10—Keep the car out of the sun until it is dry. Placing a wet car in the sun is liable to check the paint.

11—Never dust off a finished surface dry. Do not use a feather duster, or any kind of a duster to remove dust from a car. Have it washed.

Helping to Sell Liberty Bonds

MANY and surprisingly unusual methods were employed in New York to stimulate the sale of the second Liberty Loan. One of the features which attracted a great deal of attention and brought home to the American people the imperative duty of buying Liberty Bonds was the British tank illustrated herewith.

It is manned by a crew of 24 Tommies who have seen service on the Western front. Captain Richard Haigh of the Royal Berkshires, a youth of 24, who has already won the Military Cross, is the commander.

After the tank had done its duty, traveling through the streets of New York, it was installed in the sheep pasture in Central Park, where it was exhibited beside the captured UC5, the name of which was changed to "U-Buy-a-Bond."

In the picture is also shown the big Caproni biplane circling overhead as the monster British tank and the armored cars swung into the line of march.



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Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge, but be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a stamp and your correct name and address.

Prospect Card With Envelope

Editor Motor World: Your article in the Oct. 24 issue of Motor World concerning prospect follow-up card system interested me a great deal, and it has prompted me to send you samples of a similar system that I recently made up for our use.

In devising this envelope and separate report system it was my intention to get rid of the extra office work that was necessitated by copying salesmen's reports on a card.

With my outfit the salesman writes out his report on the blank forms, puts in at the bottom the date on which he wants it next brought to his attention, and then this report is filed in the prospect envelope without any more labor. In this way each envelope holds a complete history of each prospect from the time he is first interviewed until he is closed or dropped.

We find it to be a labor saving system and possibly some of your readers might be interested in it too.

I might add that the report forms are carried in a 3½ x 6-in. open-end looseleaf binder so that the salesman has them with him all the time.—A. M. Robinson, Branch Manager Jackson Motor Car Co., Worcester.

Making Inventory Entries

Editor Motor World: In a recent issue of Motor World you had quite an interesting article on an Inventory Card System as applied to an accessory store.

The principal objection to this system that we can see at this time is the fact that each clerk, on each individual sales slip, will possibly show the sales of possibly four or five separate and distinct articles. These would all have to be separated and classified each day, so as to make the deductions from stock with *one* entry. Can you suggest a way to do this with the minimum amount of labor? To our minds, it seems a rather difficult thing to do, inasmuch as there are at least a thousand different items handled in an accessory store.

Is there any special way for handling such articles as cotter pins, screws, etc., also such articles as brake lining, which is sold by the foot?—J. A. Kuehlborn, Motor Tire, Repair & Supply Co., Pittsburgh, Pa.

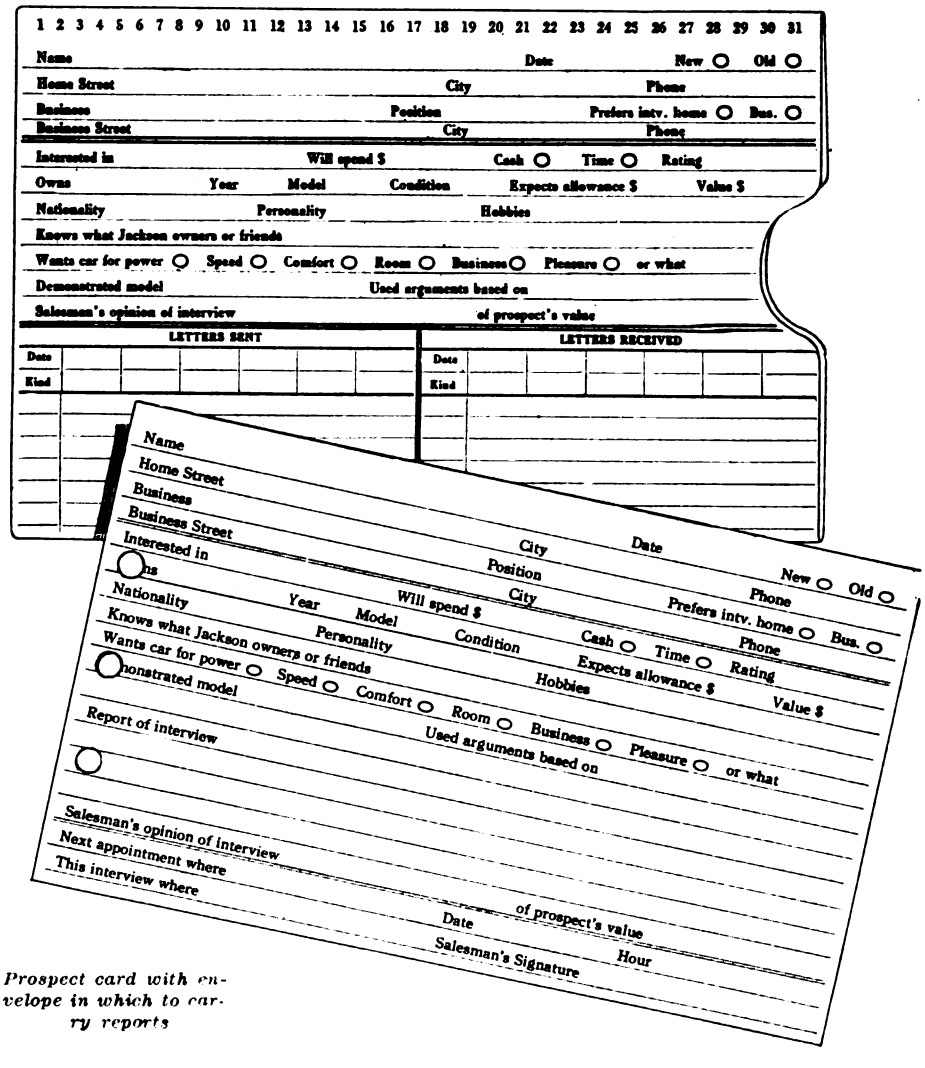
Answer.—Although the fact that there may be several different articles listed on one sales slip prevents classification of the slips according to purchases, we do not believe this should involve serious difficulty in making the entries on the inventory cards. For example:

A clerk takes a stack of sales slips, we will say, for the preceding day, and goes to his inventory card file. He looks at the first sales slip and makes entries on the cards accordingly. Then he picks up the second slip and does likewise, and so on. With a little experience he will find that instead of making separate entries it will be advisable to make a notation on a scrap of paper. For example:

There are things that are frequently bought every day in the accessory store, and experience will show him which these are if he does not already know. These few items should be noted on a slip of paper until he has gone through all the sales slips, when he may total up the quantity of each item sold and make the entries on the cards. Items sold less frequently need not be handled in this way, however. Of course, there is a chance that two or more sales of something not frequently bought may be made in one day, but in this case it is no great hardship to make two entries on the one card.

We believe that the difficulties in doing this work are more imaginary than real, and that when you actually get a man on the job working at full speed there will be very little delay or inconvenience because of the fact that the items on the sales slips cannot be classified.

There is no special way for handling such articles as cotter pins, screws, etc. Either you might count them or handle them by weight, and it is possible that you sell them both ways, small quantities being counted out and larger quantities weighed. As long as this policy is pursued, it will be difficult to keep an accurate inventory, but if you make up your mind to weigh them or count them, whichever happens to be more feasible, we do not believe you will have any trouble.



Prospect card with envelope in which to carry reports

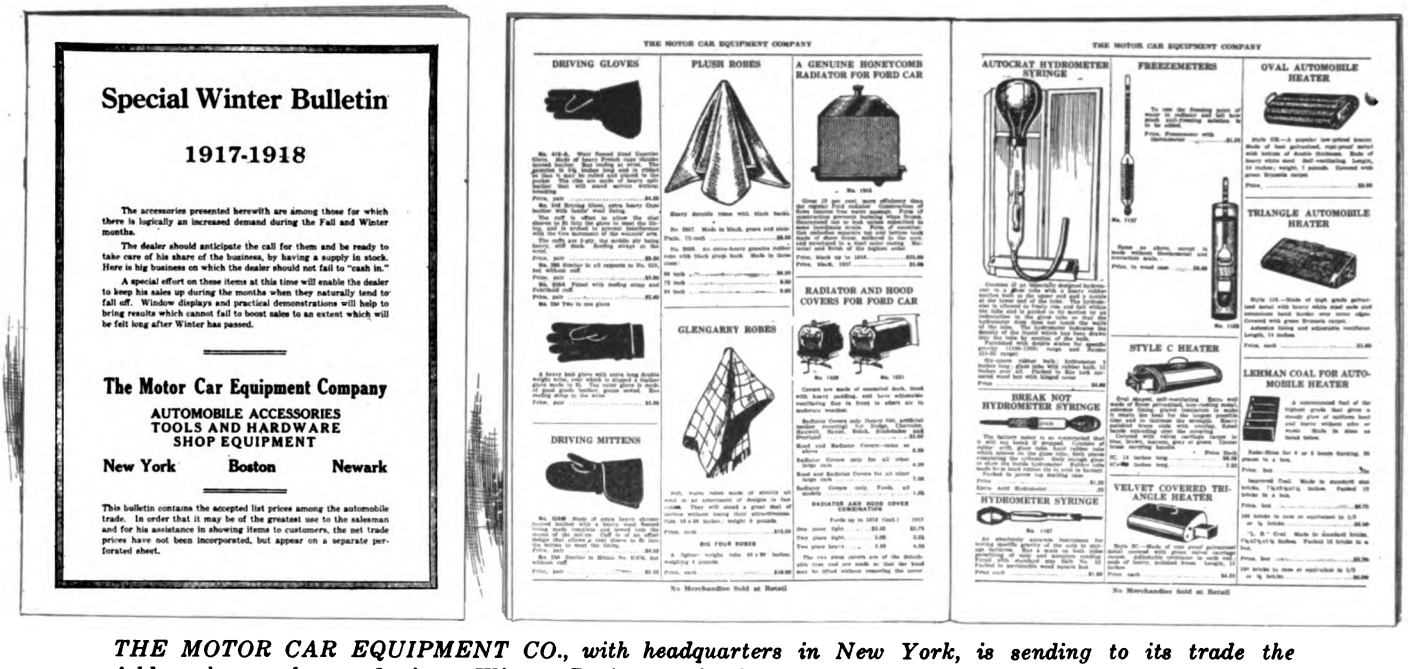
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Winter Business

All Together, Boys— Boost !

Here's How

Motor Car Equipment Boosts Winter Business



THE MOTOR CAR EQUIPMENT CO., with headquarters in New York, is sending to its trade the folder shown above. It is a Winter Business stimulant. The folder contains descriptions of goods that can be sold during the winter months, and on the front cover, which is shown here, tells the dealer the reasons he should sell these goods. It also tells why they are especially salable at this time. Circulars like this by jobbers and manufacturers will help the trade "over the top" this winter

Sell a Lot of Accessories This Winter

TAKE a look at the folder shown in the picture on this page. There are gloves, robes, freezemeters, heaters and a whole lot of other winter goods that are not shown in the picture. There were many more pages to this folder.

These goods can make money for dealers and garagemen this winter. This is THE time of year to sell them.

Do it this way:

1—Get some of these winter accessories in stock.

2—Put in a window display of a few articles. Better not use more than three principal articles. Select, for example, a heater, robes and gloves. Keep this display in for about a week and then CHANGE it.

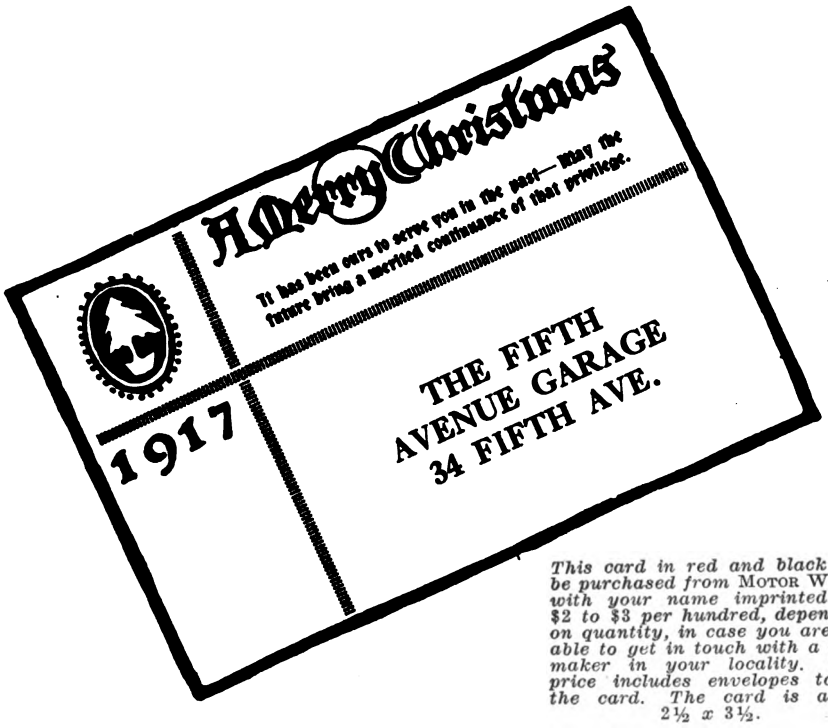
3—Locate a display in the runway to your garage or other spot where the display will be seen by all who come in.

4—Send out letters to your prospect list, calling attention to the need for some ONE of these winter goods. In the postscript of the letter mention two or three others. Sample letters for many goods were shown on pages 40-47 of the Winter Business Number of MOTOR WORLD, Oct. 10. If you don't find what you want there ask and we'll write them for you.

5—Have these winter goods on display in your store. If a man looks at your glove display hand him a pair and say: "Just put your hands in those." If he looks at robes yank one out AT ONCE. Don't wait!

6—Keep pushing, shoving and hammering. That's the way to make money in accessories—buy something and then work like a cuss and SELL it at a PROFIT.

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This card in red and black can be purchased from MOTOR WORLD *with your name imprinted for $2 to $3 per hundred, depending on quantity, in case you are not able to get in touch with a card maker in your locality. This price includes envelopes to fit the card. The card is about 2½ x 3½.*

Get Ready NOW to Send Out Christmas Cards

1—Order your cards now from some good card house. Don't get a cheap mess of shoddy cards. Select a rather classy card even if it does cost a little more than you thought it would.

2—Prepare your prospect list. This should be made up largely of your customers of the past year and such prospective customers as you believe are familiar with your business and would appreciate the Christmas message. Sending the card to a total stranger would not be a proper business act.

3—Get the envelopes addressed and stamped as soon as you get the cards. This work should be all completed by Dec. 19.

4—Put the cards in the postoffice Dec. 20 or 21. It is better to have them arrive a day or two before Christmas than a day or two after.

Hold an Enclosed Car Salon

It will help put life into the Fall and Winter business and will provide a stimulus at this time when one is necessary

1—Get some enclosed cars. In addition to the cars have at hand complete pictures and data on the types you are not showing.

2—Put curtains or a painted sign over your windows during the week before the salon, announcing that the salon is coming.

3—Clean out the salesroom. Mop it and scrub it. Make it shine. If any rejuvenating is needed do it. Rearrange the desks if it will be any improvement. Put ALL open cars in the garage or warehouse. Use open cars only in case your space is so big that the enclosed cars you can get will leave things looking too bare.

4—Get a sign or two to stand on the floor in the window or a large sign to go across the front, stating that the salon is on and inviting visitors. This should not be too blatant. Make it a job of class. Your enclosed cars are a class product and should be set in the same atmosphere.

5—Place the cars to best advantage. They should stand so that the visitor gets a good and pleasing view as he enters. They should also permit a long-distance view from some point on the floor.

6—Get rugs for the bare spots. These can be rented from a furniture store. Don't overdo the job and DON'T fail to have enough. The judgment of your wife may be of considerable assistance in arranging things.

7—Rent palms, ferns or flowers to add the necessary touch. Place these in the most advantageous spots. Don't be lavish. Be in good taste.

8—Buy flowers for souvenirs for those who visit your salon. Let the salesman lead the prospect to the flowers at the time he thinks best. Have no set time.

9—Advertise during the week before the salon in the newspapers that the salon is coming. Ask the automobile editors of the newspapers to print stories about your affair. Continue this advertising during the salon with an especially good opening ad the Sunday of salon week and a good ad the Sunday after.

10—Engage an orchestra of stringed instruments. Don't have the music too loud and provide some method of stopping it gracefully if it is interfering with the work of a salesman.

11—Prepare a prospect list. This should be quite comprehensive. Your effort should be to get as many people as possible into the salesroom during the week.

12—Prepare an attractive invitation to the salon and send it to this prospect list so it will reach most of the prospects before the beginning of the salon.

13—Secure some extra salesmen. You can take a man here and there from other parts of your organization and can take some of your women employees. Perhaps some of the wives of your men may be capable of such work and willing to try it for a week.

14—Drill these people thoroughly. Hold a class and give a lecture on how to sell a car. Show them how to meet a prospect at the door, how to conduct themselves when waiting for visitors, how to give the sales talk and how to turn the prospect over to a good closing salesman in case the salesman—especially one of the extras—doesn't feel confident.

15—Have a door boy to open and close the door. He should be in uniform if possible. Give him a good schooling on how to operate. Don't merely take him to your office and tell him. Take him to the door and drill him.

16—Follow up each prospect during the week. Make every effort to close each lead.

17—The Saturday afternoon before the salon announce a bonus for each sale made during the salon. This can be based on an extra 3 per cent, minus 1 per cent for trades, minus 1 per cent for more than two calls or some such plan.

18—Codify the results of the week and go hard after any unclosed sales. This salon should produce some good live leads that will bring business during coming months. Make sure that you get a record of every person who calls.

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How to
Plan a New Building
9—Ramps Are Cheaper Than Elevators

Detailed calculations showing how to determine the cost of a ramp or elevator installation. Ramp dimensions

(Continued from last week)

By Harold F. Blanchard

FOLLOWING articles will continue the question of scientific layout, after that plans for standard plots will be considered, and then finishing, decoration and equipping of the interior will be described.

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets.

HAVING determined the number of elevators, the data for obtaining the approximate cost of operation per year may be taken from Table I. In a six-story garage with the average travel of the elevator to the fourth floor the current required to operate a 6000-lb. elevator at a speed of 60 ft. per minute would be approximately 6 kilowatts per car-mile, which at 8 cents per kilowatt would be 48 cents per car-mile. Increasing the capacity to 16,000 lb. and with no reduction in speed, the current consumption would be 8 kilowatts per car-mile, or 64 cents per car-mile.

In a building with less than six stories the car-mileage consumption will be greater because more stops are made per car-mile, so that in a two-story installation the current consumption for a 6000-lb. elevator would be 9.5 kilowatts per car-mile. From these figures, it is a simple matter to estimate with sufficient accuracy what the current consumption will be in any given case.

Where an engineer is not employed in the building, inspection and care of the elevator can be contracted for by the year, and the usual charge for this service is $100 per car. The inspection is usually made twice a month, and includes cleaning, adjusting, lubricating and replacement of carbon brushes, contacts, fuses for the controller, etc. To this figure should be added the cost of such repairs as are required during a period of ten years, covering in addition to all other items, reroping and one set of new worm gears at the end of ten years. These items would average $150 for the 6000-lb. elevator and $200 for the 16,000-lb. elevator.

The cost of an elevator, Table I, having a net capacity of 6000 lb. and a platform size of 8 x 18 ft., traveling at a speed of 60 ft. per minute and having a rise of 84 ft., or six stories, is about $6,525, and an elevator 10 x 24 capable of carrying 16,000 lb. with 60 ft. speed and 84 ft. lifts costs about $10,250.

These prices do not include hatchway gates or enclosures, pent houses, pits, etc., as it is usual for the owner to provide them, but an estimate regarding their cost can be obtained from a builder.

An interest charge on the investment of not less than 5 per cent should be made and a depreciation charge also of 5 per cent must be allowed. The total is 10 per cent. This amounts to $653 per year for the smaller elevator and $1,025 for the larger.

It is now possible to calculate the total operating expense of an elevator for one year. In a small garage it may not be necessary to have a special man to run the elevator, but in a larger garage one will be needed. However, to make the example complete, it will be assumed that a night and day operator are required.

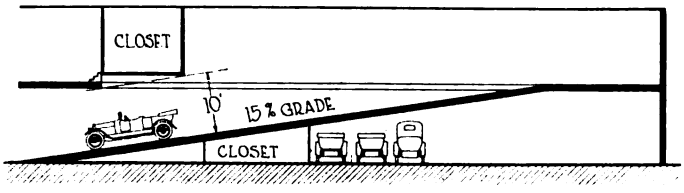


Fig. 1—Sufficient space under and over the ramp may be utilized so that the actual floor space lost in a two-story building by its use is only equal to the length and breadth of the ramp, and not twice this figure

It should be pointed out, however, that if there is more than one elevator, it does not necessarily mean that twice as much elevator help will be required, inasmuch as it might be possible to get along with one elevator operator at night.

Let us assume a three-story building with one elevator. If the elevator makes 100 round trips a day, the average length of a trip being 40.5 ft., the total distance traveled will be 4050 ft., or about .77 mile. Assume also that it is a 16,000-lb. elevator, in which case the current consumption instead of being 8 kilowatts per car-mile would be 10.4 kilowatts because of more frequent stopping than in the six-story building previously mentioned. At 8 cents a kilowatt it would be 83.2 cents per car-mile for current and therefore the daily charge would be .77 times 83.2 cents, or 64 cents, and the yearly charge would be $234. Since the elevator only runs to the third story instead of to the sixth, the cost might be taken as $9,500, and allowing 5 per cent for interest on investment and 5 per cent for depreciation, the yearly charge for these two items would be $950. The yearly figure for inspection and maintenance would be $100 and the average yearly repair bill would be $200. The salary of two men at $15 per week each would be $1,560.

It is now necessary to calculate the cost of the space occupied by the elevator. If $10 is a fair charge for the actual housing of the car without any service such as washing or polishing, light, heat, etc., and it is assumed that the car takes up a space 7 x 25 ft., including aisle way, then the cost per square foot per month is 5.7 cents and the cost per square foot per year is approximately .68, and an elevator with a platform 8 x 18 ft. would require a shaft at least 10 x 20 ft., or 200 sq. ft., which at 68 cents amounts to approximately $136. This is for one floor. Inasmuch as it is a three-story building the total charge is $408.

Charges are made only for the actual space taken up by

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TABLE I—COMPARATIVE FIGURES FOR RAMPS AND ELEVATORS FOR BUILDINGS OF TWO TO SIX STORIES, AND ELEVATORS OF 6,000 AND 16,000 LB. CAPACITY

	6,000-Lb. Elevator with 8x18-Ft. Platform					16,000-Lb. Elevator with 10x24-Ft. Platform				
Height of Building	Two-Story	Three-Story	Four-Story	Five-Story	Six-Story	Two-Story	Three-Story	Four-Story	Five-Story	Six-Story
Price	$5,825	$6,000	$6,175	$6,350	$6,525	$9,250	$9,500	$9,750	$10,000	$10,250
Interest at 5 per cent, Depreciation at 5 per cent	583	600	618	635	653	925	950	975	1,000	1,025
Inspection, greasing, adjustment	100	100	100	100	100	100	100	100	100	100
Repairs	150	150	150	150	150	200	200	200	200	200
Current consumption in K.W. per car mile	9.5	8.25	7.8	6.9	6	12.5	11.2	10.4	9	8
Round trip in ft. (13.5 ft. between floors)	27	40.5	54	67.5	81	27	40.5	54	67.5	81
Yearly current cost on basis of 100 trips per day at 8 cents per K.W. Multiply two preceding lines by .55 to get answer in dollars	141	184	232	256	267	185	250	308	335	357
Minimum salary expense based on actual time elevator is in operation figuring labor at 20 cents per hour	174	201	228	255	282	174	201	228	255	282
Totals	$1,068	$1,235	$1,328	$1,396	$1,532	$1,584	$1,701	$1,811	$1,890	$1,964
A ramp is cheaper if floor space costs less than this figure per square ft. per year	*1.78	*.88	*.61	*46.5	*40.4	†2.70	†1.14	† .77	† .58	†47.5
Therefore a ramp is cheaper if monthly cost of car space 7x25 ft. is less than	25.9	12.70	8.90	6.78	5.88	36.40	16.60	11.20	8.45	6.92

*This is assuming an elevator speed of 60 ft. per min., a distance of 13½ ft. between floors, exterior dimensions of elevator shaft of 10x20 ft., a ramp space 10x100 ft. between floors.

†This is assuming an elevator speed of 60 ft. per min., a distance of 13½ ft. between floors, exterior dimensions of elevator shaft of 12x26 ft., and a ramp space of 12x100.

the elevator. It may be that additional space should be figured in because of elevator approaches, although if the building is properly designed, the ordinary aisle should be sufficient for reaching the elevator.

Current	$234
Interest and depreciation	950
Repairs	200
Inspection	100
Salaries	1,560
Space occupied	136
Total	$3,180

Added to this should be the interest and the extra investment necessary in the way of building a shaft, a pent house, elevator doors and so forth for which no definite figures can be given as they vary with each installation.

Cost of Ramp

For the same building the cost of a ramp is practically the equivalent of so much floor area. The dimensions of the ramp will be taken up presently. Meanwhile, for computation it is safe to assume that the ramp occupies a space 10 x 100 ft. per floor or 1000 ft. per floor, of course, not counting the first floor. Therefore, in a three-story building the area taken up would be 2000 sq. ft., which at 68 cents per year would be $1,360. This shows a saving in favor of the ramp of $1,820.

If it is not necessary to have a regular elevator operator, the total charge for salaries may be figured on a different basis which will alter these figures somewhat. Since it takes 1¾ min. to make a round trip, and assuming that 100 round trips are made in a day, the total time consumed is 175 min., or practically 3 hours. Figuring a floorman's time at 20 cents per hour, this would give a charge of 60 cents per day for elevator operation, or approximately $215 per year, in which case the total cost of the elevator would be reduced to $1,835 as compared with $1,360 for the ramp.

There is another item which should be put down in favor of the ramp, but inasmuch as it varies in every case, it is not advisable to include it in the figures given above. Namely, the garage with a ramp instead of an elevator is more valuable; more money can be obtained for the car spaces. It is safe to say, working on the same basis that $12 per car space might be obtained instead of $10, which still further proves the economy of the ramp.

Not Always Usable

Notwithstanding that the ramp is more economical it may not be advisable to use it. If the plot is less than about 55 ft. wide and a ramp is used the building will be too narrow for the storage of cars. In other words, with a plot 55 ft. wide, after taking 10 ft. off for the ramp, it would be only 45 ft. wide, and unless rather short cars only were accommodated, this would be too narrow, and to build a ramp in a building any less than 55 ft. wide is out of the question. Also, 40 to 50 ft. is the required diameter for turning a car unless a turntable is used and, therefore, in a narrow building, if a ramp is employed, this must also be considered. In other words, if a ramp is placed in a building 55 ft. wide and say 150 ft. long, it will be necessary to place a turntable at the top, otherwise there would not be room to swing the car around into the aisle.

Likewise, it is not desirable to use a ramp in a building less than about 100 ft. long because the grade would be too steep. Suppose that the distance between floors is 13 ft. and that the permissible grade is 15 per cent. Allowing a level space of 20 ft. at the top of the ramp for swinging the cars around, there would be 80 ft. remaining, and 13 divided by 80 is 16 per cent. This is permissible. On the other hand, if the building were 80 ft. overall, allowing 20 ft. at the top, the remainder would be 60 ft., and 13 divided by 60 is more than 20 per cent.

15 Per Cent

This brings us to the question of what grade to use. Fifteen feet in 100 is the most satisfactory rise. The average car is capable of climbing a 20 or 25 per cent grade with ease usually, but for the sake of safety it is better to adhere to 15 per cent. It is not so much a question of getting up the grade safely as it is getting down. If the brakes are not effective, there is chance of the car getting beyond control.

If the inside width of the ramp is 9 ft., it allows about 1½ ft. on each side of the car, which is plenty for safety in case a car meets a pedestrian. This gives an outside width, including wall, of approximately 10 ft.

Some provision should be taken to prevent cars meeting on the ramp, and the simplest, most effective means is to install mirrors at an angle top and bottom so that the driver entering the ramp can see whether it is clear or not.

War's Demands *on You* See Page 5

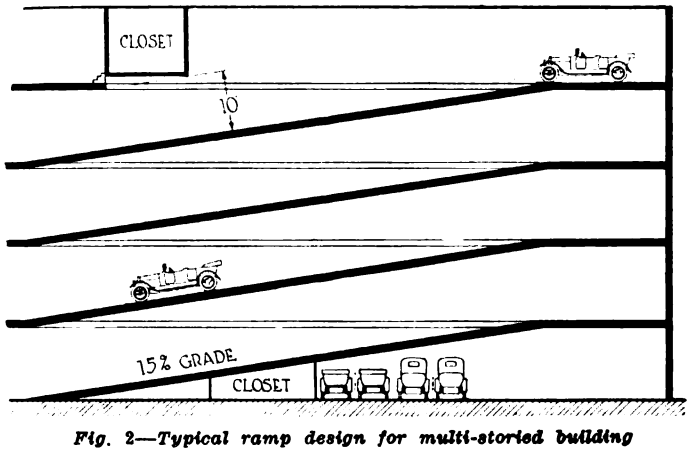


Fig. 2—Typical ramp design for multi-storied building

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Editorial Observation

Get Into the Work

THE situation which has been brought about by a threatened curtailment of motor car production has become somewhat more hopeful during the week gone by. The War Industries Board, following the appointment of J. F. Replogle as director of steel products, appears to be taking a more favorable view of the essential character of the industry than it has taken in the past. And it has been to this end that the automobile industry has been working; it was to bring about such favorable action that the Automobile Industries Committee was brought into being.

But there is a whole lot to be done yet.

More Vigorous Action Needed

So far, the fight to make plain that the passenger car is an essential, and as such must be permitted to exist and to expand insofar as that is possible, has been waged by a few. There has been no concerted movement which would make itself understood. Those few who have been raising their voices in protest have been working almost alone.

Action far more vigorous is needed. The dealers of the country should long ago have *started this movement. They should have been the leaders, and they should be far along in the work right now, battling for the life of their industry.*

Suppose the government should carry out its plan of so restricting shipments of steel that the motor car factories could not get enough to produce more than a small fraction or none of their normal output. Who would suffer most? Not the factories, for the government would keep them busy on munition work. It would be the dealers.

Thousands would be wiped out, clean; the remainder would find it pretty tough sledding and wellnigh impossible to keep their organizations intact with their deliveries of cars cut in half and perhaps more.

This is no time to hope that no such thing will happen! This is not the time to sit complacently by and pass the buck to the factories to get their dealers out of this hole.

It is time for the dealers to look the situation squarely in the face.

Then get into the movement.

Passenger Car an Essential

Talk the passenger car as an essential to everyone you meet. You will be surprised at the number of people who believe that the passenger car generally is a luxury and a non-essential—but who use their own for business purposes. *Convert them.* Convert them by telling them the truth, and by putting up in front of them the facts that they do not now know or which they are too prone to gloss over.

Ask them if a farmer's car isn't a necessity. Then tell them that 80 per cent of the cars are owned by farmers.

Write letters to your local newspapers and tell the editors how essential the passenger car is to the worker, the farmer, the office man. Go call on the editor and get him sold on the *essential* idea.

Write to your congressmen and your senators. These men are surrounded by an atmosphere saturated with "non-essential." Give them facts. Tell them how essential this passenger car industry is to the welfare of the whole country. How many dealers, garages and repairshops are there in your city? What would happen to these if the production of passenger cars were suddenly cut down from 40 to 75 per cent as the government threatens? What would they do? What would become of their families?

Awaken Public Opinion

It is going to take a great big man-sized fight to convert the lazy thinkers who have had "non-essential" blazoned forth at them every day in their daily papers.

And the fight won't be won unless the dealers get into it. Public opinion must be awakened. *The dealers must do it!*

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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome—especially if they are timely and brief.—THE EDITOR.

Clear, Concise, Full of Pep

Editor Motor World: I believe this is the first time I have been unable to express my opinion of a publication, but the task seems too big in this instance. That is—I cannot possibly give expression to my appreciation of your Winter Business Number of Motor World.

The editors and advertising representatives of Motor World cannot be given enough credit and thanks for this great work.

Never in the history of the automobile business has a more complete, more thorough and more enthusiastic issue of any trade paper been given to the automobile trade.

Clear, concise and full of pep and ginger, chuck full of sale and advertising help of the utmost value, your Motor World represents the acme of trade paper efficiency. We thank you.—L. M. Lloyd, Advertising Manager, Edw. A. Cassidy Co., New York.

Tractors Interest Delaware Farmers

WILMINGTON, DEL., Nov. 17—Delaware farmers, especially those in the upper section of the state, are becoming interested in the farm tractor. The Hercules Motor Co., Wilmington, Knickerbocker Form-a-Tractor dealer, has given several demonstrations recently in the vicinity of Wilmington, some at the request of farmers in different localities, while other tractors are also being demonstrated, showing the interest that is being developed here.

Boston Dealers Not Worried

BOSTON, Nov. 17—Boston dealers are not worried about curtailment of production by makers. They have talked it over informally and those who have delved into the matter feel it will be a good thing for them. They reason out that the prices of cars have advanced, and may go higher. They have their organizations built up now and are on a real footing to go after business

On the other hand with higher prices for cars the commissions will be proportionally larger. Also there will be a stabilizing of the used car market prices. With a shortage of cars, and a greater demand due to the South and Southwest taking cars steadily throughout the Winter, it will not be a hard problem to sell the allotments in New England that the dealers here can get.

The used car market with Boston as its center does a tremendous business every year, and the second hand cars will be in bigger demand than ever. So dealers need not be afraid to take cars in trade. The wide-awake dealers are planning along those lines now instead of sitting still and grinning pessimistically.

Are You Changing From Credit to Cash?

Dear Sir:

Beginning November 1, our business will be conducted strictly on a cash basis.

No, this does not mean that we do not consider your credit good. It means that we consider your credit very good. So good in fact, that you are able to do a cash business with us. To you this may seem radical, a change you will not be able to meet. It is, however, quite the reverse. It is merely a matter of becoming accustomed to the change.

We all know that if we didn't have bills to pay that we would get along a great deal better. We go somewhere, make a purchase and have it charged. There we have a bill. We make another purchase, and still another, and so on until we have a big bill. Big bills are hard for us to pay. Why not eliminate these big bills by paying as we go? By paying cash we always know just where we stand. We have no cause for argument about items in our accounts because we have no accounts.

Perhaps you won't always have the money with you. EASY. We have decided to make use of coupon books in $10 and $25 denominations which you can carry in your car or leave with us at the garage. You may use these coupon books or not, as you wish. The $10 coupon book will cost you $9.50, or a discount of 5%. In other words, you get two more gallons of 25c. gasoline by buying a $10 coupon book. The $25 coupon book will cost you $23.75, or a saving of five gallons of 25c. gas. These amounts are worth saving.

We are not going to promise any immediate saving to you on account of lower prices, etc. Our prices will remain unchanged, our service will be improved and with our new building giving us a larger amount of room we will be in a better position to care for your trade. There will be no favoritism shown, everyone will be treated alike, so if you don't ask for credit after November 1st it will be unnecessary for us to refuse it.

We know YOU will like this method of doing business.

WEST BROADWAY GARAGE.
Per K. A. Pullen, Onawa, Ia.

Hunka Tin

You may talk about your voitures,
When you're sitting 'round your quarters,
  But when it comes to getting blessé in,
Take a little tip from me,
Let those heavy motors be.
  Pin your faith on Henry F.'s old Hunka Tin.
Give her essence and l'eau,
Crank her up and let her go—
  You back firin', spark-plug foulin', Hunka Tin.
The paint is not so good,
And no doubt you'll find the hood
  Will rattle like a boiler shop en route:
The cooler's sure to boil,
And perhaps she's leakin' oil;
  Then oftentimes the horn declines to toot.
But when the night is black,
And there's blessés in the back,
  And they hardly give you time to take a smoke,
It's mighty good to feel,
When you're sitting at the wheel,
  She'll be running when the bigger cars are broke.
After all the wars are past,
And we're taken home at last,
  To our reward of which the preacher sings:
When these ukulele sharps
Will be strumming golden harps,
  And the aviators all have reg'lar wings:
When the Kaiser is in Hell,
With the furnace drawing well,
  Paying for his million different kinds of sin—
If they're running short of coal,
Show me how to reach the hole
  And I'll cast a few loads down with Hunka Tin.
Yes—Tin, Tin, Tin,
You exasperating puzzle, Hunka Tin!
  I've abused you, and I've flayed you,
  But, by Henry Ford who made you,
You are better than a Packard, Hunka Tin!
—From the American Field Service Bulletin.

Minneapolis Motor Reserve Extended

MINNEAPOLIS, Nov. 17—Automobile owners in 500 cities of Minnesota are offered service for the Federal and State governments. This is in addition to the regular Motor Reserve. The organization is being carried on by R. B. Simning, assistant secretary for the Minneapolis Automobile Trade Association, which organized the Motor Reserve. In each city a dealer is selected to enroll ten car owners and to apportion the work when called on for transportation from representatives of either branch of government.

S. A. E. Section Meeting Dates

NEW YORK, Nov. 17—The Society of Automotive Engineers has made public dates of future meetings of its sections: The Pennsylvania section, Nov. 22; Buffalo, Dec. 5 at the Statler Hotel; Mid-West Section, Nov. 23, at the Chicago Automobile Club. The Tractor Standards Committee will meet Dec. 5 at the Minneapolis Section offices.

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The RETAIL NEWS

EAST

Commercial Motor Co., Harvard Street, Pittsburgh, has been formed by W. C. Rea and John F. Howley. The company will act as distributer for the Indiana truck in the Pittsburgh territory.

George C. Barnard, Hartford, Conn., formerly of the City Auto Repair Co. and the Thrall Colton Motor Car Co., has taken over the Harry Starkie Garage and is featuring service for Chevrolet cars.

Aetna Garage, Hartford, Conn., has moved from 1227 Main Street to the new Empire Garage.

Stewart Products Service Station, Hartford, Conn., has taken over the former quarters of the American Motor Truck Co.

Roth Cadillac Co., Erie, Pa., has succeeded to the automobile and accessory business of Jacob Roth.

New Garages

A. T. Nevels.....Hartford, Conn.
Roody Bros. Garage.....Columbus, S. C.

SOUTH

Southern Moon Automobile Co., Taylor & Kennedy, proprietors, has opened offices, showrooms and service station in Atlanta, Ga., introducing the New Moon to the Southern motor world.

Cliff Averett and William Heard, Columbus, Ga., have purchased the Battle Motor Co.

MIDDLE WEST

C. R. Van de Zande & Son, Campbellsport, Wis., Buick, Olds and Chevrolet dealers, have purchased the garage and equipment of Glen S. Hill, and will move their business to the Hill Garage.

L. F. Schoellkopf, Madison, Wis., Ford dealer, is opening a branch sales and service station at Mazomanie, Wis., and will discontinue the branch houses at Black Earth and Verona, Wis.

St. Aubin Tire Repair Co., 1016 St. Aubin, Detroit, has opened for business.

Public Garage Co., Houghton, Mich., has been formed by Harry T. King and John T. Bryant, and has purchased the Calumet Garage plant at 410 Seventh Street and will establish a modern garage and service station, repair plant and storage rooms. The new company has the Buick agency and also the agency for Republic and G. M. C. trucks.

Service Garage, Decatur, Ill., has been opened corner of Mill and William Streets. Repair work and storage will be specialties.

L. W. Cook, Decatur, Ill., has opened a garage and sales agency on East Main Street. The structure is 80 by 150. The sales agencies for the Allen, Auburn, and Republic cars will be maintained. There is a large space for storage, and a repair business will be conducted.

M. & M. Auto Supply Co., Marinette, Wis., has absorbed the Marinette Vulcanizing Co. George Williston is manager.

Storage Battery Service Co., Marshfield, Wis., has opened for business.

C. B. Williamson's garage and sales agency, Rockford, Ill., has been removed from 120 North Court Street to a new plant at 116-118 North Court Street.

Fanning & Gerber, Carlinville, Ill., have purchased the Beasley Building on North Broad Street and will remodel it into a garage and sales agency.

Wemple Truck & Tractor Co., Springfield, Ill., has rented the Lincoln Garage on North Seventh Street and two salesrooms adjoining. The present location on Jefferson Street will be abandoned. The new plant will hold 125 trucks.

J. A. Reynolds, Toledo, Ohio, has purchased the interests of Malone Bros., of the Collingwood Garage. He will also maintain a general repair shop.

Franklin Garage, Toledo, Ohio, has leased the repair department to Jones Bros., formerly connected with the United Garage in its repair shop.

Waterville Garage at Waterville, Ohio, is now conducted by Hanifan & Disher. It bore the name of Wittenmyer Garage, formerly. Mr. Wittenmyer has enlisted in the army.

Cavendish Bros., of the Weston Hardware Co. at Weston, Ohio, have bought the Weston Garage and will handle the Ford and Dodge cars.

F. J. LaMere, Sturgeon Bay, Wis., who has been operating a garage and repairshop at that point for several years, has incorporated the business under the name of LaMere Auto Sales Co., with a capital stock of $10,000.

Orriel Philbrick, Baraboo, Wis., has disposed of his garage and repairshop, known as the Gem City Garage, to Raymond Wheeler, Madison, Wis., in order to be free to enlist in the aviation corps of the United States Army. The sale includes the Ford dealership held by Mr. Philbrick for more than six years.

Creek Motor Sales Co., Milwaukee, has relinquished its connection as Westcott distributer in Wisconsin and will devote its entire attenton to the distributon of the Elgin Six, having recently been given much additional territory. The Westcott has been taken over by the Healy Motor Car Co., Milwaukee.

Whiting-Buick Garage, Berlin, Wis., is adding a large repairshop and service station, to be managed by Harvey R. Ziebell.

Simmons-Chalmers Co., Cleveland, Ohio, is now located permanently at 1971 East Sixty-fifth Street, where complete sales and service facilities have been provided.

Carris-Franklin Co., 1829 East Thirteenth Street, Cleveland, Ohio, will erect a two-story building, 75 x 150, at 3620-3636 Prospect Avenue, S.E., to be used for an automobile salesroom. It will have 12,250 sq. ft. of floor space and will cost about $50,000.

F. J. Blanding has purchased the interest of J. D. Clarkson in the firm of Clarkson & Blanding, Lansing, Mich., Ford distributers for Lansing and adjacent territory, and will conduct the sales and service station.

W. D. Vandecar, Grand Rapids, Mich., will remodel his garage and build an addition.

P. B. Arnold, Fort Wayne, Ind., U. S. L. agent, has opened a new station at 1112 Harrison Street, near Jefferson.

Karl Welcker, Howell, Mich., has leased a part of the former Britten Garage Building, West Grand Street, for a repair shop and general garage, with especial attention given Buick service and repairs.

J. E. Rattan, Decatur, Ill., has purchased a building at the corner of Park and Franklin Streets and will remodel it for a tire and accessory store.

Auburn Sales Agency, Decatur, Ill., has rented the building at 224-226 North Franklin Street for a garage and sales agency.

Cornelius Swartout, Aledo, Ill., has opened a new garage. A sales agency, supply store and repair and storage department will be maintained.

Delta Garage, Delta, Ohio, has been bought by K. H. Waterfield.

Linden Garage, Fenton, Mich., has been turned over to D. Hastings & Sons by Black & Rusniski.

New Garages

J. W. Parkman and W. D. Boyer. LaCrosse, Wis.
Harry Smart.....North Mukwonago, Wis.
Albert Helming .....Sheboygan, Wis.
Grover-Dix Implement & Auto Co. Junction City, Wis.
Lake Mills Auto Co. (60 x 120). Lake Mills, Wis.
Othersall & Sorenson (60 x 82)..Antigo, Wis.
Knorr & Rausch (50x100)...Neillsville, Wis.
Asplund & Larson (50 x 110)..Ashland, Wis.
J. R. G. Hebenstreit (70 x 85). Shullsburg, Wis.
Roger Mara .....Grand Rapids, Mich.
Goodspeed Realty Co....Grand Rapids, Mich.
Dell McMinn's Garage.....Hillsdale, Mich.
J. Lancaster Garage .....Clinton, Mich.
Sadler Garage .....Marine City, Mich.
James McKenna.....Quinnesec, Mich.
Strand Garage, 414 Wisconsin Street, Racine, Wis.
Valley Inn Garage (Ford).....Neenah, Wis.
Church Street Garage.....Hastings, Mich.
Carris-Franklin Co. (75 x 150, $50,000), Cleveland
Fred Chambers.....Augusta, Mich.
J. O. Holmes and Hugh Irwin..Decatur, Ill.
O. L. Langellier Motor Co. ($30,000), Lincoln, Ill.
A. H. Bryant.....Tuscola, Ill.
Arthur Gillespie.....Lyons, Ohio
Adair & Hauseman (50 x 120)..Pioneer, Ohio
Lake Mills Auto Co. (66 x 132, $14,000) Lake Mills, Wis.
Akron-Selle Co. ($12,000).....Akron, Ohio
West Side Motor Co.....Hamilton, Ohio
Moored Bros.....Marion, Mich.
Richard & Starking.....Lapeer, Mich.

SOUTHWEST

Jos. McClure & Son, Harveyville, Kan., have bought the Harveyville Motor Car Co. from Lee Bros. & Cook.

Paige Motor Car Co., Wichita, Kan., has moved from 1126 East Douglas Street, where it has been temporarily located for the past three months, to its new quarters at 228-30 South Lawrence Street.

Charles Keepers, Olathe, Kan., who recently added a full line of automobile parts and supplies to his garage, is now making preparations to open a filling station.

Revere Coykendall, Harper, Kan., has sold his garage to John Otti.

Bert Brown, Garland, Kan., has bought O. O. Baker's interest in the garage.

The Park Garage, Junction City, Kan., owned by Frank O'Reilly, has been leased to Jake Dunemeyer of Salina.

Carey Sowder, Madison, Kan., has bought the Barnard interest in the Madison Auto Co. and Harry Colton is now doing the work at the garage.

Barton Bakeslee, Independence, Kan., manager of the Independence Motor Co., has purchased the lot west of the postoffice. Work will begin soon on a 50 x 140 foundation for a modern fireproof addition.

Hewis Auto Garage, Sedan, Kan., has been enlarged and equipped. A. Gregg is the proprietor.

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J. W. Spurgeon, Baldwin, Kan., purchased the Baldwin Garage. Mr. Spurgeon and his son Virgil will enlarge the building with a concrete and stucco addition. The front will be remodeled and many other improvements will be added.

Theo Snyder, Norton, Kan., has sold his interest in the Norton Tire & Repair Co. to J. C. Epperson, who recently moved from Lenora to Norton.

Gregg & Gregg, Belleville, Kan., have purchased the Willard Service Station and moved the plant and equipment to their garage on East Broadway, South Side Square. Bert Lockwood is the manager.

Allen's Garage, Cottonwood Falls, Kan., has installed a vulcanizing department, with Dave Carpenter in charge.

Hal Green, Scottsville, Kan., has bought the garage of L. N. Hartman.

R. H. Howard, Coffeyville, Kan., who owns a garage, has opened an uptown salesroom.

Star Tire Service Co., Joplin, Mo., will move into new quarters soon.

J. H. McCumber, LaPlata, Mo., has bought the garage and repairshop of W. I. Davis.

Schaaf Bros., St. Marys, Mo., recently suffered a loss by fire when their garage burned.

Huff & Ferguson, California, Mo., have bought the garage of D. E. Houtszong.

J. R. White, Trenton, Mo., has bought the garage of James Dye.

Payne Bros., Colony, Okla., are the successors of the Fast-Payne Auto Sales Co.

L & M Garage, Okmulgee, Okla., has opened its new storage annex. Al B. Lamberson is the proprietor.

Oscar Swimford, Purcell, Okla., has bought the Beck & Cessey Garage.

Parks & Frazier, Chelsea, Okla., have changed the name of the O. T. Garage to the Western Garage.

John Sallaska, Wetherford, Okla., who recently established a garage here, has opened a Buick service station.

Bauman & Bruton, Ringling, Okla., owners of the Fourth Street Garage, will install a vulcanizing plant soon.

Arthur Hoefs, Fort Stockton, Tex., is proprietor of the Fort Stockton Garage and Machine Shop.

Guaranty Motor Co., Midland, Tex., C. I. Kuykendall manager, has bought out the Welcott Auto Co. and will continue to handle the Buick and Dodge cars.

G. C. Southerland and J. E. Procter, Hico, Tex., have bought the City Garage from John Newton.

Spaulding Auto Co., Lubbock, Tex., has purchased the stock of accessories and tires of W. S. Hodges and has leased the building occupied by him.

T. J. Nerrell, Weatherford, Tex., has sold his interest in the Jones & Nerrell Garage to Alex. Kincaid, who is now the junior member of the firm.

Carter & Weldon, Corsicana, Tex., now have charge of the L. H. Lee Garage.

Capital Electric Co., Santa Fe, N. M., has opened an electric shop on Sandoval Street.

S. P. Callison, Windsor, Mo., has bought the J. E. Milliren Garage. J. F. Ridenour will manage the garage for Mr. Callison until he is able to give it his entire time.

Pfeiffer & Hannemann, Union, Mo., are remodeling their garage.

Ray Purschke, Union, Mo., has moved into his new garage.

Matzager Garage, Holston, Kan., is being enlarged and improved.

Auto Sales Co., Unionville, Mo., has bought the McCalment Co.'s complete stock of tires and accessories, also Harry Livesey's repairshop.

B. F. Brokhausen, California, Mo., has opened a branch Ford Motor Inn at Tipton, and G. H. Routszong, who had been manager of the Routszong Garage in California, will take charge there.

Denby Sales Co., Dallas, Denby truck distributers has moved to 209-211 South Market Street.

Nayden & Son, Lyons, Kan., have opened the Nayden Tire Repair Shop.

George M. Hollis has bought a half interest in Cannon's Garage, Mound City, Kan. The firm name will be changed to Cannon & Hollis.

Western Tire & Battery Co., Hutchinson, Kan., will take over the ground floor of the I. O. O. F. Building on Sherman Avenue West, formerly occupied by the Reno Buick Co. The Western Tire & Battery Co. is a supply firm of Wichita.

A. Harper, Wellington, Kan., has sold the Har-Mar Motor Co. to C. R. Burrows, of Kansas City.

Allison Bros., Joplin, Mo., have purchased the Pioneer Vulcanizing Co., Baxter Springs, Kan., of Will Sease. George B. Allison will have charge of the work.

W. I. Davis, LaPlata, Mo., has sold his garage and repair business to J. H. McCumber, of LaPlata; H. S. McCumber and Wilbert Hyatt, of Unionville, Iowa. Mr. Davis retains the Ford agency and will do repair work.

McAntire Motor Co., Joplin, Mo., distributer of Saxon cars, is now located in a new home at 217 West Fifth Street. The building will be remodeled and a new concrete floor installed throughout the entire structure.

New Garages

Quapaw Gas Co.....Bartlesville, Okla.
Valley Motor Co. (addition),
Pauls Valley, Okla.
Z. E. Murphy & Son (addition),
Centralia, Kan.
G. M. Carpenter.....Elgin, Kan.
Baily Garage.....Douglas, Kan.
Carl Talley.....Penokee, Kan.
E. W. Davis.....Sabetha, Kan.
C. G. Witten.....Towanda, Kan.
E. R. Prickett.....Goodland, Kan.
S. S. Seyffer.....Leroy, Kan.
Barton Blakeslee.....Independence, Kan.
C. B. McFarland.....Butler, Mo.
Sam. W. Farr.....Rich Hill, Mo.
F. S. McCune.....Tulia, Tex.
Rio Grande Buick Co.....Laredo, Tex.

NORTHWEST

J. A. Keefe and J. H. Keefe, Billings, Mont., have organized the Accessory Sales Co.

Stone Garage, Mason City, Neb., has been purchased by Wrasse Bros. from J. W. Mattex. Mr. Wrasse recently purchased the Ford Garage from Merle Fairfield. The Stone Garage will be used by the Wrasse Bros. as a storageroom for automobiles.

R. H. Kettlewell, Windom, Minn., bought the John Morris Garage.

P. C. Schoelkopf, Hopkins, Minn., sold his Guarantee Garage to John Olund of Cambridge, Minn.

Edw. Nelson and Elmer Larson, Willmar, Minn., dissolved their business, which will be contined by Edward Nelson and Ole Olson.

A. W. Kewley, Atlantic, Iowa, has purchased the Cass County Auto Co.

Reed & Logan, Panora, Iowa, have dissolved partnership. Mr. Reed will continue the business under the firm name of the Reed Auto Co.

E. C. Norman, Winthrop, Minn., has bought the Scholl interest in Norman & Scholl Garage.

W. E. Bergey, Whalan, Minn., has leased the Whalan Garage.

William Lean, St. Paul, has opened an electric service station at 167 West Sixth Street.

Mr. and Mrs. Leslie Weatherson, Faribault, Minn., bought an interest in the Faribault Garage.

O. H. Uvaas, Kensington, Minn., bought the Kenington Garage.

Patrick Stinson, Wood, S. D., bought the C. O. Dustrude interest in the Wood Garage and now is sole owner.

Edward Toby, Pierpont, S. D., bought the Pierpont Garage from Allan Wilson.

J. W. Helget, Hanska, Minn., bought a half interest in the Hanska Garage operated by J. S. Hanson.

Pete Engaaser, Garvin, Minn., bought the Nelson Garage.

C. W. Rice, Clyde Park, Mont., bought the H. O. Rice interest in the Clyde Park Garage Co.

Ivan Jeffers and Elmer Grotta, Esmond, S. D., bought the Esmond Garage.

Hans E. Holen, Upham, N. D., bought the Black & Randall Garage.

Leon Rykken and Harvey Bunn, Mayville, N. D., dissolved partnership.

Blain Auto Co., Aberdeen, S. D., has opened at 121 Third Avenue, SW., managed by J. H. Bell.

V. J. Sauer, Pine River, Minn., has bought from R. E. Snell the building and business of the Pine River Motor Co.

Hawkinson Garage, East Grand Forks, Minn., has been sold to G. L. White and W. T. Johnson, of Fargo, N. D.

Adolph Hein, Elgin, Minn., sold his garage to Fred Petrich, of Rochester, Minn.

Madon & Schwichtenberg, Morristown, Minn., of the City Garage, have bought Motor Inn.

Pleasant Spurloch, Roundup, Mont., has leased the W. N. Taylor Garage.

Joseph Stecher, Havelock, N. D., leased the Ellingson Garage.

F. A. Buck, Fargo, N. D., has taken over Motor Inn.

James Coats, Cedar, Iowa, has bought the interest of his partner, Chester Davis.

Standard Oil Co., Waterloo, is building a service station to cost $8,000.

Standard Oil Co. is opening a new service station at Audubon, Iowa.

Harley Jones, Ryder, N. D., bought the Fredeen Garage.

C. C. Platz, Calvin, N. D., sold his garage to Wesley Willey, of Mt. Pleasant, Iowa.

Standard Oil Co., Storm Lake, Iowa, is opening a new service station there.

Peter Staley, Alta, Iowa, has bought the Aurelia Garage at Aurelia, Iowa.

Olson & Sons, Boone, Iowa, have taken the Studebaker agency.

John Fordyce, Emmetsburg, Iowa, has bought the Emmetsburg Auto Co.

Bashaw's Garage Co., Davenport, Iowa, has succeeded the Bashaw-Joy Co.

W. H. Drake, Garner, Iowa, has sold his garage to Pike and Maynard.

Richard and Linus Yeggy, Riverside, Iowa, have bought the Yeggy Garage.

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Power-Wilson Co., Conrad, Mont., bought the Pondera Valley Auto Co. from E. R. Alquist.

Charles Hecox, Belgrade, Mont., bought the garage interests of E. A. Sanborn.

Billings Auto & Machinery Co., Billings, Mont., dissolved.

Vestal & Sample, Sumatra, Mont., garage and repairshop, dissolved partnership.

Plains Motor Co., Plains, Mont., is now the property of John McNair, Chicago.

Farley Bros., Crookston, Minn., lost their vulcanizing shop by fire.

P. O. Wallin, Comfrey, Minn., bought the Ausbrand Valentine Garage.

M. Madsen and B. J. Suelzle, Harvey, N. D., dissolved partnership and Mr. Madsen will continue.

J. L. Holscher, Red Lake Falls, Minn., bought the Jensen & Evans automobile repairshop.

Oscar Iverson, Jeffers, Minn., sold his garage to A. Valentine of Comfrey, Minn.

Edward Nelson and Ole Olson, Williamar, Minn., will continue the garage business of Nelson & Larson.

Isidor Hanten & Co., Watertown, S. D., have succeeded Hanten & Benson, automobiles and tractors.

New Garages

A. Empey and A. H. Sprute (60 x 170, $5,000) .....Farmington, Minn.
L. P. Solberg (50 x 90).....Pequot, Minn.
Charlie Wright.....Aberdeen, S. D.
Morris Severn.....Jamestown, N. D.
Richards Auto Co. (50 x 80) Cass Lake, Minn.
Dennis Connolly.....Belle Plaine, Minn.
Hedron & Co.....Lafayette, Minn.
F. A. Quinn (50 x 80).....Augusta, Mont.
C. W. Carter and W. A. Dodder (50 x 80) Hingham, Mont.
Central Auto & Supply Co....Waterloo, Iowa
Manson Auto Co.....Manson, Iowa
Smith Brooke.....New Market, Iowa
F. M. Kouba.....Iowa City, Iowa
M. L. Lyman.....Tabor, Iowa
Van Osting & Thompson (addition) Kanawha, Iowa
Moe & Sexe (50 x 100).....Hills, Minn.
A. H. Lane.....Rock Lake, N. D.
Sam Stites.....Sioux Falls, S. D.
Karl Westre.....Mayville, N. D.
J. H. Houseman.....Howard, S. D.
Johnston Garage.....Nashwauk, Minn.
Gene Burke.....Sioux Falls, S. D.
W. A. Wobbrock.....Millville, Minn.
Levardosky & Norris.....Williams, Minn.
Hoffman & Nash.....Helena, Mont.
N. H. Browning.....Belt, Mont.
Northwestern Motor Co.....Linton, N. D
Sioux Falls Reo Co. (50 x 150, $3,500) Sioux Falls, Iowa
A. J. Wagner.....Wahkon, Minn.
J. D. Steiner.....Cass Lake, Minn.
Silver & Jones (50 x 140).....Rohan, Mont.
A. Blackorby.....Hansboro, N. D.
A. J. Stauffacher.....Platte, S. D.
S. M. Salmons.....Spencer, S. D.
J. F. Bishop (50 x 115, $20,000)..Dillon, Mont.
John Melland.....Victor, S. D.
W. H. Cassels.....Groton, S. D.
Burkitt Motor Co.....Stuart, Iowa
R. K. Luse.....Oxford, Iowa
Andrew Christianson.....Humboldt, Iowa
Walsoworth & Boulder.....Greenfield, Iowa
Kostian Co. (addition).....Traer, Iowa
M. C. Bidwell (addition).....Grinnell, Iowa
Rettig & Son.....Independence, Iowa
John Wardell ($12,000).....St. Paul
Harold Clouse.....Ida Grove, Iowa
Joe Maloney .....Estherville, Iowa
Longaker & Noah.....Knoxville, Iowa
Christian & Ridenour.....Toledo, Iowa
Washington Service Station, Washington, Iowa
R D. Jones.....Breda, Iowa
J. Palmerton.....Fort Madison, Iowa
Western Auto Specialty Co., Cedar Rapids, Iowa
Fred W. Woelhalf.....Burlington, Iowa
Charley Girard .....Greenfield, Iowa
W. R. Neal.....Atlantic, Iowa
William Hendricks .....Fairfield, Mont.
Samuel Boyd.....Williston, N. D.
August Ziebarth .....Parshall, N. D.
L. W. King Co.....Sioux Falls, S.D.
Knapp Brown (104 x 150, $50,000), Sioux Falls, S. D.
Petterson & Nelson (50 x 70)..Roseau, Minn.

PACIFIC COAST

R. T. Mason, Tacoma, has opened a garage and automobile repair shop.

Tacoma Auto Exchange, Tacoma, has been purchased by C. E. Alden and F. W. White. They will operate a repair shop.

Talbot & Casey, Ford dealers, Portland, Ore., have recently moved to their new building, where they have complete machine shop, blacksmith, upholstery, paint and repair shop, beside salesroom and showrooms.

Hale & Mallott, Okanogan, Wash., have secured a large agency for Ford cars, and have purchased a 5-year lease on new tile garage in Pateros, Wash., from Palmer & Teegarden.

Pacific Tire Co., Tacoma, Wash., has taken an adjoining storeroom, which will be occupied by accessories. The company recently installed new machinery for re-treading.

Mack Buick Co., Everett, Wash., has opened its new quarters on Hewitt and Rucker Avenue, where it has sales department, service and accessory store.

White & Alden, Tacoma, Wash., have opened a service station and repair department.

G. L. Pitchford, Tacoma, president of the Pitchford Tire Service Co., Gates Half-Sole distributer, has opened a branch in Seattle.

Eaton & Campbell, Seattle, distributers of Dodge cars, have moved to their new quarters at Pike and Broadway, where they occupy the entire 3-story building.

Great Western Motors, Inc., Seattle, distributer of Paige cars, has moved to its new brick building at Pine Street and Boylston Avenue.

Overland-Pacific Branch, Seattle, is building a new home to cost $160,000. It will be 3-story, 180 x 113, located at East Pine Street and Twelfth Avenue.

D & M Tire Agency, Tacoma, Wash., will open a service department for Mohawk tires and Brunswick tires, in charge of G. M. Tharp. Modern equipment for repairing and vulcanizing tires will be installed.

H. F. William Brockman has sold the University Garage, Palo Alto, Cal., to Edward E. Zellers. Brockman remains as manager.

Johnson & Sund have purchased the Bracchi Garage, Palo Alto, Cal., and will handle the Dodge.

L. W. Barber, San Jose, has purchased the tire store and vulcanizing plant from R. Farnsworth and continues business under the name of the I X L Rubber Co.

F. M. Crook has purchased the business of the K. O. Tire Co., San Jose.

Ernest A. Smith has become the owner of the South End Garage, San Jose, and has secured the agency for the Truxtun truck attachment.

L. L. Wagner, formerly connected with the Consolidated Garage, has erected a building, 35 x 180, at 465 South First Street, San Jose, designed as an exclusive Willard storage battery service station. Business is conducted under the trade name of Electric Battery Station.

M. H. Kent, formerly conducting the Taylor Block Garage, has moved to 470 South First Street and is doing business as Kent's Garage.

Pacific Tire & Rubber Co., Seattle, has secured the agency for Washington and Oregon for the Carlisle cord tire.

New Garages

Universal Auto Co. (85 x 142, $20,000), Spokane
Hodgins Motor Co. ($30,000).....Spokane
Jas. F. Koshollek.....Blaine, Wash.
Burdick Bros. & Brett, Ltd..Victoria, B. C.
Mrs. Henrietta Stone (100 x 120, $30,000), Walla Walla, Wash.
Universal Auto Co. (80 x 140, $20,000), Spokane
Roberts Motor Car Co. (100 x 100), Portland, Ore.
Dodge Motor Car Co. ($6,000)....Salem, Ore.
The Dalles Garage Company, The Dalles, Ore.
Wood & Lane (100 x 120, $25,000), Walla, Walla, Wash.
Storey & Campbell (75 x 120), Vancouver, B. C.
Arlington Motor Co. ($9,000), Arlington, Wash.
Dodge Automobile Agency..Aberdeen, Wash.
Inland Auto Company (51 x 140), Prineville, Ore.

MOUNTAIN

Mountain Motors Co., Denver, Packard distributer for Colorado and adjacent Rocky Mountain territory, is putting up an $80,000 fireproof building, 3 floors and basement, at Speer Boulevard and Sherman Street.

Miller-Ray Motor Co., Denver, is the new name for the All-Year Motor Co., Kissel distributer for Colorado, New Mexico and Wyoming. This firm has also added the Maxwell retail agency for Denver and vicinity. The salesroom is now located at East Colfax Avenue and Lincoln Street.

Rocky Mountain Auto Sales Co., Denver, new Colorado distributer for the Auburn and Regal, has moved from 204 Sixteenth Street into larger quarters at 749 Broadway.

Hoffman-Page Service Co., Denver is the new name of the Hoffman-Foster Service Co., a repair concern specializing on Dodge and Hudson work. It has moved from 735 to 801 Broadway.

Western Rubber Supply Co., Denver, a tire-rebuilding concern, has moved from 1620 Broadway into larger quarters at 1616 Broadway.

Charles E. Breon, Denver, has had his garage made an official service station for the Dodge, Jeffery, Stutz and Studebaker. The location is 767 Broadway.

Boulevard Garage, Denver, 780 Broadway, has been made a Smith Form-a-Truck service station.

Jones & Loomis, Basin, Wyo., have bought the Basin Garage from A. W. Black & Co.

New Garages

Service Garage, Tredway & Fielder (50 x 125), Denver.
Rush Garage (60 x 125).....Denver
Twenty-ninth Avenue Garage (75 x 90), Denver
D. J. Woodruff (addition, 25 x 115), Shoshoni, Wyo.
Shockley Service & Sales Corp. (100 x 150), Casper, Wyo.
Public Motor Co. (100 x 80), Greyball, Wyo.
Shuey Motor Co. (150 x 150), Miles City, Mont.
C. D. Wild & Co. (60 x 100)..Morland, Wyo
Gateway Motor Co. (100 x 200), Livingston, Mont.
Hughes & Morrow (50 x 140), Riverton, Wyo.

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Why Signal Corps Spells

O-P-P-O-R-T-U-N-I-T-Y

If a miracle fairy suddenly arose before you and offered you wealth, health, adventure, experience, told you of a new industry, a year ago small, now rapidly growing, ten years hence one of the greatest on earth, and gave you the opportunity to learn that business NOW, to gain practical knowledge and experience in it and if it combined also journeys to foreign lands *would you grasp the opportunity?* Would you leap at the chance to open the door to life's greatest adventure and richest offerings? Of course you would—and so will every man who knows the spark of ambition. The Signal Corps of the National Army is the miracle fairy. It is the mine of education, adventure, experience, health and wealth. It offers:

Health—
- Open door life
- Wholesome food
- Steady habits
- Training

Experience—
- Airplane repair
- Truck repair
- Passenger car repair
- Airplane engine testing
- Passenger car driving
- Truck driving
- Airplane mechanics

Education—
- Camp instruction
- Field instruction

Travel—
- Special camp in U. S.
- Field service in France
- Sight-seeing tour of Berlin (later)

Adventure—
- Life close to trenches within sound of battle
- Part of great air service in thick of army backbone

Wealth—

Airplanes will be future messengers, carriers, mail deliverers. Thousands of them will be needed — and mechanics, executives and engineers EXPERIENCED in airplane work will be in demand.

It is an honor to belong to the Signal Corps. Only healthy, intelligent, earnest, skilled workers are taken. If you are white, not over 40, physically fit, skilled as chauffeur, automobile mechanic, automobile engine repairman, motorcycle repairman, automobile engine tester, airplane propeller tester, vulcanizer, or motorcyclist, you are eligible to the opportunities of the Signal Corps. The air fighters must be backed up by men skilled in these and other trades, ready for instant and constant service, able to repair an engine, bring up supplies, construct and maintain the airdromes and drive trucks and passenger cars in field service. It must have men who as:

Mechanics will act much like the racing driver mechanician at the pits, ready to inspect and overhaul an engine, change parts, straighten twisted rods and plates, and do all sorts of skilled mechanical work.

Chauffeurs will bring up from the bases new equipment, food and ammunition and supplies to replace those destroyed, besides driving field officers in passenger cars.

Automobile repairmen will care for the airplane motor to see that nothing will happen to it in midair, tighten bearings, put in new parts, and if in the main repairshops, rebuild motors from the ground up.

Automobile engine testers will test airplane engines before each flight, a most important work.

Propeller makers and testers will operate while traveling in airplanes at high speed, work requiring specialized skill.

Motorcyclists will carry important communications and small but important supplies.

Vulcanizers will care for the pneumatic tires.

In addition to the wonderful opportunities already mentioned, all skilled workers are assured of positions as non-commissioned officers. Every one receives the rank of corporal or sergeant, with pay ranging from above $30 to $62.50 monthly and all clothing, food, transportation and so forth. And every officer placed in charge of squadrons has also the opportunity to become truck master in charge of fleets carrying the supplies from bases to the airdromes.

The Signal Corps needs 60,000 to 100,000 men. It must have skilled men. It offers everything. And you have here the chance to serve your country with your best knowledge in a most important branch of the service with a minimum of physical danger.

Following enlistment, which every one must of course do as a private, the recruit is placed in a large camp somewhere in the United States where climatic conditions are favorable and where he is taught. He receives a minimum of military training—no trench digging—only the kind that teaches military discipline and builds health. He receives pay from the day his enlistment is approved.

This is the enlistment blank, the key to one of the greatest schools on earth, the key to opportunity, to health, experience, training, education, travel and adventure. Turn the key—PEN and INK will do it—fill it out and mail it in today—and open the door to life's great offering. You serve your country, work for Democracy, do your duty, and, in addition, gain chances few men on earth can hope for.

Volunteer Department, 119 D Street, N. E., Washington, D. C.

I desire to enlist, as a skilled workman, in the Aviation Section of the Signal Corps.

Name .....

Address .....

.....

At present employed with.....

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Trade.....No. of years in trade.....

If you will be called by draft, when?.....

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Accessories



PETER'S CRANKSHAFT GRINDER

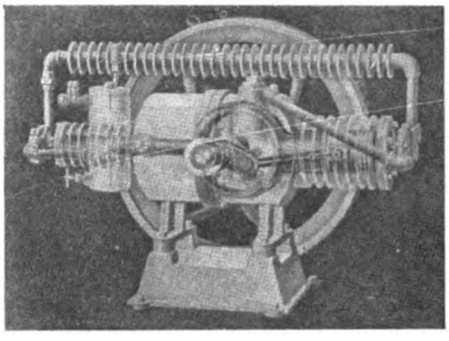
A tool for retruing crankshaft journals. It will take crankshafts up to 2½ in. in diameter and does not require a lathe. Four perfectly aligned hardened steel plates, the faces of which are keen cutting edges, are linked together with hardened steel pins. These are connected to steel handles which are equipped with adjusting micrometer screws. The tool is placed around the shaft by removing a pin, and the adjusting screw is set until the jaws lock over the shaft. By simply turning the tool, all uneven spots are cut away and a perfectly smooth and true surface results. Price $17.50.—Peters Engineering Co., 3203 Chestnut Street, Philadelphia.

UNIVERSAL ATTACHMENT

One and 1½-ton truck attachments are made for any car. A solid axle is used with internal gear drive with semi-elliptic springs and a 4-in. channel frame. Tires are 32 x 3½ solid rubber on the 1-ton. The 1½-ton attachment has a 5-in. frame and 34 x 4½ tires.—Universal Attachment Co., Seattle, Wash.

J & E AUTO CRAWLER

Made of hard wood, natural finish, and fitted with ball bearing castors and neatly upholstered headrest. Size 22x36. Price $2. west of Mississippi, $2.25, delivered. Kund & Eiben Mfg. Co., Pittsburgh.

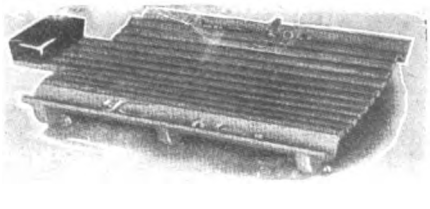


DEAD EASY TIRE PUMP

It has two cylinders and is clamped to the running board, being operated by a vertical lever that is swung back and forth. Each cylinder has a high and low pressure chamber, the low pressure operating to 40 lb. and the high pressure cylinder to that of the tire. It is stated that because of the link and rocker arm construction, producing a toggle action, each piston travels rapidly at the beginning of the stroke when the load is light and becomes slower and more powerful when the load is greatest. The leverage on the pump is also increased, due to the method of mounting, and length of the handle. It is said that 300 lb. pressure may be obtained. When not in use the pump may be carried in the tool box where it is possible to bolt it permanently to the running board. Price is $15.—Globe Manufacturing Co., Battle Creek, Mich., U. S. A.

UNDERSLINGING EQUIPMENT FOR FORDS

The body, the rear mudguards, aprons and muffler are removed. The frame is sawed at a point 13 in. from the rear spring and plates are attached which drop the frame 2, 3 or 4 in. as desired. The same is done to the front of the car. A japanned plate is furnished for attaching the mudguards and a hole is cut in the floor in the rear to accommodate the rear springs. Price $20.—William Dominick & Co., 1607 Prairie Ave, Chicago.

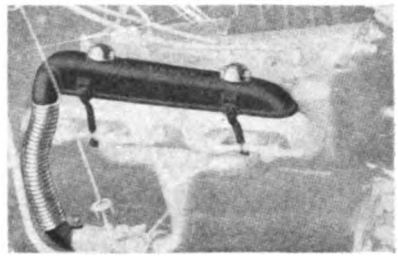


BLOOD'S NON-FREEZE LIQUID

A liquid which freezes at 58 deg. below zero and boils at 374 deg. Fahr. It is said that it will not evaporate, has no action on metal, cloth, rubber, etc., is uniform in strength and needs no care after putting in radiator. It contains no calcium chloride or other inorganic salt. Price $1.50 per gallon or $12 per dozen gallons.—T. L. Blood & Co., St. Paul, Minn.

RYNEHART A-1 RIM TOOL

A split rim contractor operated by a turnbuckle in the center. It may also be used to expand the rim. Price, $3.50.—Rynehart Rim Tool Co., 19 Fulton Street, Brooklyn.



WILLARD SUPERHEATER FOR FORDS

It is a cast iron stove which fits over the exhaust manifold and supplies hot air through a flexible aluminum tube. To compensate for the changes in temperature, a cold air valve is supplied. It may be attached in 10 min. Price $5.—The Willard Co., South Bend, Ind.

SPECIAL GEARS FOR FORDS

Bevel gears with 3 to 1 or 2¾ to 1 ratio are manufactured. Lower gear ratios than the standard of 3.62 to 1 are also furnished. The gears are of nickel steel, hardened and sandblasted and are interchangeable. Price $12.50.—Illinois Gear & Radiator Works, Chicago.





VAN DORN STEEL EQUIPMENT

Office furniture, filing cabinets, cupboards, shelving and bins are made of steel in a variety of sizes and design. The advantage of steel is that it is fireproof, insect proof, dirt proof and will not warp. Office furniture includes flat and roll top desks, tables, bookkeeper's tables, chairs, stools, waste baskets, filing cabinets, from the small 5 x 3 in. single unit to the largest and most elaborate combination.

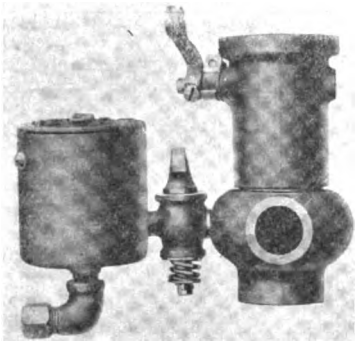
The advantages claimed for steel shelving are that it reduces fire risk and insurance rates, it is finished in baked enamel, having a hard durable surface which will not rust and is easily kept clean; that it has a skeleton construction, admitting light from all sides; that the shelves are adjustable without the aid of tools; that extra shelves or sections can be added at any time; that it possesses maximum strength, and that the spacing between the shelves may be changed at will.—Van Dorn Iron Works, Cleveland.

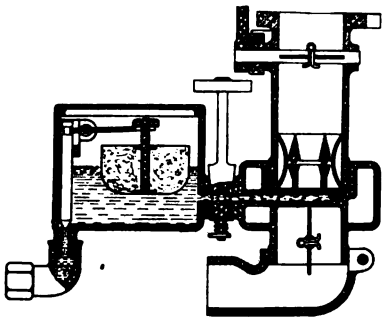
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DETROIT KEROSENE CARBURETER SIMPLE AND ECONOMICAL

THE Detroit kerosene carbureter for Fords starts on gasoline and runs on kerosene. The same float chamber is used for both fuels, switching from one to the other being attained through a three-way valve. It is made by the Detroit Kerosene Carbureter Co., Kresge Building, Detroit.

The particular features emphasized by the company are that it has no adjustments; throttles smoothly; idles without loading; the cylinders are free from condensation, and that it gives increased mileage—21 miles instead of 18 for gasoline is claimed. With the respective fuels at 21 cents and 10 cents per gallon the cost per 100 miles is $1.16 and $40.





The most distinctive feature is the specially formed venturi, whereby the kerosene is fed through a groove surrounding the smallest diameter of the venturi. Through this peculiar construction it is found that a destructive eddy is created which atomizes the fuel into a very fine floating fog.

It is found expedient to raise the temperature of the fuel as high as possible without causing vaporization. This is accomplished by an exhaust preheater which surrounds the kerosene fuel inlet and jets.

The use of two venturis and two jets—one for low speed and one for high—makes it possible to use a very high velocity through the venturi at low motor speed.

While the small venturi is operating at all times, by the use of the specially designed sliding venturi, as the velocity increases the second jet is automatically cut in and operates at the higher speeds.

While gasoline is used in starting, it is only for a very short period and depends entirely upon the weather conditions, and only then for the length of time that is necessary to raise the temperature of the kerosene to a point that will properly vaporize it and hold it in suspension.

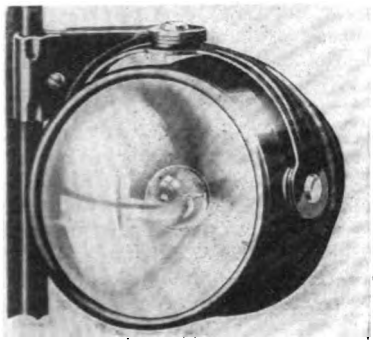
To insure a perfect mixture, a fixed or non-adjustable jet is used, eliminating the possibility of mistakes in adjustment, the exact proportion of kerosene being adjusted automatically by the specially designed venturi.

The price is $22, including fittings, and gasoline tank.

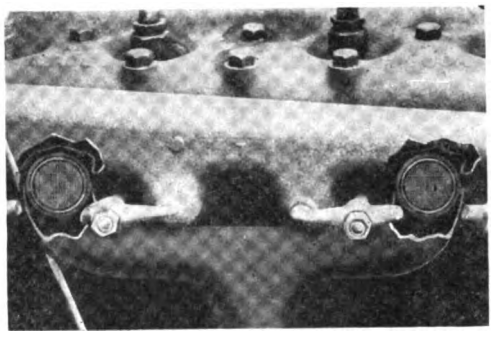


SUPERIOR GARAGE HEATER

A heater which burns natural or artificial gas. It is designed to occupy a small space and may be placed on the floor or on a bracket. It is 13 x 37½ x 41 in. Air for combustion is obtained from the outside and the burned gases are carried off in the atmosphere by a small flue. The heater is safe, because no gases or air from the inside of a building can enter it, since it has an automatic, self-locking, gas-proof door, which need be opened but once during the cold season to light the pilot. The pilot takes a very small amount of gas, and once it is lighted the main heater may be turned off or on simply by operating a valve. If desired the heater can be equipped with a Superior water heater at small additional cost. The Superior sells for $30 and the Cosy, a smaller design, for $24. The Cosy should heat a garage of 2000 to 3000 cu. ft. and the Superior one of 5000 or 6000 cu. ft. —Superior Mfg. Co., N. S., Pittsburgh, Pa.







STEWART V-RAY SEARCHLIGHT

This new spotlight is unique in appearance and at the same time combines all the features desired in such a light. It is said to be extremely powerful, although its size is limited to 6 in. The front face is flanged so that the interior is absolutely sealed to prevent the entrance of moisture and dust. A focusing device is provided so that all types of lamp bulbs may be used effectively. The 3½-in. reducing mirror is installed directly on the back in such a position that the traffic can be seen without swinging the lamp into the car. A feature of the hanging bracket is that it reduces vibration and supports the light more firmly. The light has been designed to give a good appearance in profile or from the side of the car. It is balanced at every angle, consequently cannot be thrown out of adjustment by vibration. It may be installed on either the right or left side of the windshield without alternation of the bracket or changing a single bolt or nut. The mirror is formed with a recess on the back so that a handle for swinging the light is unnecessary. The bracket is so shaped that the storm curtains may be fastened around it readily. The rear of the lamp may be removed by turning a bayonet joint so that installation of a new bulb or cleaning of the lens may be quickly done. Price $5; west of Rocky Mountains, $5.50. —Stewart-Warner Speedometer Corp., Chicago.

REDDING SIGNAL TAIL LAMP

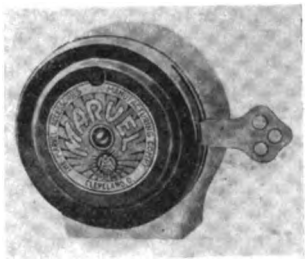
This is an electrically operated rear signal that permits the driver to indicate his intentions to a following driver. It comprises a cylindrical metal container in which is housed a cylinder upon the surface of which are the words LEFT, RIGHT, STOP, and BACK. These words may be flashed in front of the window at the rear by an electrical control button near the driver's hand. The price is $18. —K. G. Barkoot, Chamber of Commerce Building, Detroit, Mich.

GASK-HOT GAS SAVER

This appliance takes the place of the gasket at the connection of the manifold with the cylinders, and comprises a small mesh screen placed across the intake passage that serves to break up the solid particles of the mixture, tending to make them a gas. It is stated that because of the location, the screen is heated, and transmits the heat to the mixture, facilitating gasification.—Consolidated Motors Co, Detroit, Mich.







MARVEL IGNITION LOCK FOR FORDS

It replaces the standard Ford switch and ignition key and is installed in a few minutes. The same screw that holds the Ford switch in position is used in attaching the lock. When the ignition is locked off a metal plate covers this screw so that the switch cannot be removed. Two keys are supplied with each lock, which are not interchangeable with other Marvel locks. It is finished in black enamel, price $1.50.—Marvel Accessories Mfg. Co., Cleveland, Ohio.

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The Week in Washington

Cut in Manufacture Now Less Imminent

WASHINGTON, D. C., Nov. 19—While no official announcement directly concerning the War Industries Board with relation to alloy steel and the automobile industry has been made since the meeting with the automobile industry and the appointment of the automobile committee, it is now almost certain that the War Industries Board is taking a really favorable view of the industry and that there will not be that restriction due to steel shortage which was at first intimated.

The board, through J. F. Replogle, director of steel products, has set in motion what would seem to be the necessary machinery to get together all facts with regard to the steel industry, steel production, government requirements and steel statistics in general so that before any future restriction of steel shipments is even considered by the board it will have all of the facts in the case. This is really what the automobile industry demanded at its hearing on Nov. 2.

The new committee representing the automobile industry, composed of Messrs. Copland, Lee and Chalmers, has, in addition to establishing its headquarters in the Munsey Building, gotten under way with its official representation of the industry with the government, its duties including investigation of factories to learn of idle capacity and report findings.

It now seems that it is up to the automobile committee to work in perfect harmony and represent the automobile industry as it should be honestly represented in this case. Although this committee has only been in operation a few days there is much feeling that the automobile industry is not presenting itself as a unit before the government as it should in an exigency such as this.

If undertone is true there seems to be, instead of a united automobile front, what might be described as three factions of the industry, each one of which is endeavoring to save itself, and this without much apparent regard to the other two.

One of these divisions might be designated as those manufacturers who feel that there will be a shortage of their particular brand of alloy steel and as such they are apparently making special offers to the government to take over their entire plants for munition work and at the same time placing upon them a halo of patriotism and incidentally giving the impression that those not so turning over their plants should be looked upon as not just as patriotic as the day calls for.

There is a second division of manufacturers whose factories are busy and who see no crisis in a possible restriction of alloy steels due to the fact that their design makes it possible generally to substitute carbon steels for alloy steels.

The third division is that whose business has dropped off very perceptibly for the last several months and who would prefer their factories to be given over entirely to munitions or other government work.

Willard Heads War Board

WASHINGTON, Nov. 19—Daniel Willard, president of the Baltimore & Ohio Railroad, has been appointed chairman of the War Industries Board, succeeding Frank A. Scott, who resigned because of ill health. Willard is serving as chairman of the Advisory Commission of the Council of National Defense. R. F. Howe of New York, a director of the International Harvester Co., is made a civilian member of the new Aircraft Production Board.

Ascertaining Government Needs

WASHINGTON, Nov. 20—The Automobile Industries Committee is at present engaged in a series of conferences with various Government departments with the purpose of learning specifically what munitions the Government requires and which of these can be produced by automobile manufacturers considering their idle capacity, equipment and facilities. These facts are to be determined by an investigation carried on by the committee itself.

Ask Bids on Trucks

WASHINGTON, Nov. 20—Statements that the Government is preparing to award contracts for the new Class A, B and C trucks are not altogether accurate. Manufacturers are now being informed of contract details for the assembly of class B trucks and have been asked for bids. Those making bids will be invited to Washington within the next two weeks and will be given contracts at that time for the assembly of 10,000 class B trucks.

M. A. M. Confirms Copland's Appointment

NEW YORK, Nov. 20—The Motor & Accessory Manufacturers, Inc., has not changed its name. Reports that such a change had been made at a meeting of directors of the association in Washington on Nov. 15 are untrue. The principal purpose of the gathering was to confirm the appointment of A. W. Copland to the Automobile Industries Committee and to provide funds for the association's Washington activities.

Government to Work Closer With Industry

WASHINGTON, Nov. 16—Close coordination of the Government's war requirements with the nation's industrial facilities will be developed by the Council of National Defense through the formation of a Bureau of Manufacturing Resources, the personnel of which will shortly be announced. The bureau plans disclose that the council is taking considerable precaution to guard against an economic unrest and upheaval in calling on American industries for service in war work.

The plans include the bureau as a part of the War Industries. Board, and will deal with the situation arising when manufacturers who have facilities are asked to place their productive capacities at the Government's disposal or to turn a part of their facilities to war work. The bureau will attempt to distribute such work so there will be a minimum of unsettlement in any one particular industry.

The council will make no arbitrary classification of any industry as an essential or non-essential, but will allow the question of curtailment to be decided by the available supply of raw materials, fuel transportation facilities and other considerations.

To characterize any industry as non-essential, it was pointed out, might foster unfair public opinion against a legitimate trade. When the demands of the army and navy conflict with industry it is expected that industry will have to give way, but it is expected that the cooperation with the Government will be given by all, and that the new Manufacturing Resources Bureau will be able to apportion war contracts to those factories having an idle capacity rather than to those whose business is at full capacity.

Chapin Heads Road Transport

WASHINGTON, D. C., Nov. 19—The appointment of the Highways Transport Committee is announced by the Council of National Defense. The purpose of the committee is to assist the railroads and other means of transportation in the movement of supplies during the war and to work with the highway authorities to maintain the public roads in shape for such use. The membership of the committee will be: Chairman, Roy D. Chapin, president Hudson Motor Car Co.; Logan Waller Page, Director of the Office of Public Roads, U. S. Dept. Agriculture; Henry G. Shirley, chief engineer Maryland State Roads Committee; George H. Pride, president Heavy Haulage Co., New York City.

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The Week in the Industry

What Manufacturers Want Is Information

DETROIT, Nov. 19—*Special to Motor World*—The situation in the manufacturing zone which centers around Detroit is clearing. The sentiment prevails that all the manufacturers require is a clean-cut statement from the government setting forth specifically what it wants from the factories.

In spite of rumors plants that would otherwise have remained stable are not shutting down. The disposition to put the automobile industry out of business seems to be passing with a clearer understanding of the facts.

Statements made to representatives during the week by such men as C. A. Earl of the Willys-Overland Co., Henry Ford, R. H. Collins of the Cadillac Motor Car Co., E. VerLinden of the Olds Motor Works, and other executives of such companies as Reo, Hudson, Buick and Oakland, cannot help but give the impression that all that is wanted to clear the atmosphere immediately in the automobile industry is a clean-cut proposition from the government.

One of the greatest detriments to a clear understanding of the situation is the rumor crop. Last week in some centers reports were circulated that factories were closing down and laying off men in and about the Middle West. As a matter of fact, one factory was closed for a week for its annual inventory period and bright and early this Monday morning has started to work again full blast. One company which was reported to be about ready to close its doors has been shipping 105 cars a day for the last 2 months, and unless some unforeseen circumstance should arise will ship more than this for the next 2 months.

Nobody buys cars in these war times unless they need them, and yet Cadillac is shipping at the rate of 3,000 a month, the Overland about 300 a day, Ford nearly 3,000 a day, and other factories in accordance with their output capacity. In spite of all the pessimism in the speculative centers of the country business is excellent in many parts of the country.

People in these sections who have always needed cars but have not been able to afford them before now are buying cars. Throughout the cotton centers this is particularly true. Business is so good through certain sections of the South that used car dealers are buying up cars and shipping them to points through the cotton belt where they are being disposed of quickly at good prices.

The Oakland Motor Car Co. is now producing from 150 to 175 cars a day, the Monroe Motor Co. is now making from fifteen to twenty cars a day, and concerns in the ten-a-day class, such as for example the Jordan Motor Car Co. in Cleveland, are having the largest day shipments in their history right now. This concern shipped twenty-three cars on Nov. 2, its normal output being 10 a day.

The Studebaker Co. at South Bend reports that its sales for November so far have been better than those of the first two weeks in October.

Everybody Hopes the Sun Will Soon Be Out

NEW YORK, Nov. 20—Reports from manufacturers of cars indicate three things:

1—There is a prospect of excellent business in cars around $1,000 if they can be secured.

2—Dealers are somewhat apprehensive as a result of the wide publicity given to the Government's proposal to curtail production.

3—The factories are saying little to their dealers about the situation in the belief that it is best to say nothing until the new motor trade committee has had a chance to work. The factories seem to fear that comment of any kind might cause a panic among the dealers.

Inquiry among dealers reveals also three things:

1—The dealers believe there is good business to be had, especially in country areas and in the medium priced cars.

2—The dealers have read the numerous recent newspaper stories and naturally are somewhat perplexed.

3—The dealers are NOT in a panic and don't seem to be headed that way. They are giving serious thought to the situation and are hoping things will work out well.

Among the larger dealers there is a tendency to store cars, and factories are advising this action. Obviously, if production should be curtailed the dealer with a warehouse full would be well fixed.

There is also, as advised by the Mitchell Motors Co., a big field in keeping existing cars in operation. This affects both dealers and garage operators.

All manufacturers are looking forward to their showtime meetings of dealers, at which it is proposed to sum up the situation and explain plans for the future. Several makers have already held dealer meetings—Cole, Hupmobile and Liberty—and Mitchell is holding meetings at distributing centers and will continue this plan throughout the winter.

While it is regretted that the War Industries Board's proposal of curtailment was given such wide publicity before facts were known there is a feeling of optimism prevalent.

Might Be Worse On New York Motor Row

NEW YORK, Nov. 19—Business conditions appear quite satisfactory to New York dealers. The stock of used cars on hand is normal for this time of year, but even where a larger number than usual is being held the dealers are not worried.

In fact, there is in many cases a deliberate attempt at storing used cars for the belief is general that there will be a demand in the spring unprecedented in extent and sufficient to materially increase market values.

Practically all dealers are experiencing difficulty in getting shipments of new cars, and in this field, too, there is quite a general attempt for dealers to get as many new cars as possible and store them. For example, one dealer expects to receive shortly 1000 cars which will be stored for the spring. Dealers figure that it will pay them well to buy storage space for this purpose.

Among the dealers in higher priced cars the sentiment is fairly general that the number of sales shows a normal increase over October of last year, but that the amount of money taken in is less. In other words, special jobs are not selling nearly as freely as they would under normal conditions.

There is an excellent demand for sedans and several dealers report inability to get enough to fill orders. The demand for chauffeur-driven enclosed cars also is good though there is little call for coupes.

In general there is a certain uneasiness regarding the future, and a number of dealers are quite frank in their statements that they are looking about for establishments not far distant from Broadway but where the rental will be considerably less.

Western Sales Are Good

CHICAGO, Nov. 17—Trade conditions in this territory have undergone no changes of importance during the past week. Sales and prospects of sales as a whole in the passenger car field, while not as good as could be wished, are as good as could be expected. This is the general opinion of the industry around Chicago and Indianapolis and other manufacturing centers.

Retail sales in the West and Central West are much better than in the East, and in the South sales are unusually strong. The country over, however, according to factory reports, is seriously behind in retail orders. Retailers are not stocking up as they have in previous years. Bankers are tightening up on loans to retailers, insisting that both new

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and used stocks be moved before money is borrowed for further purchases.

Closed cars are not moving as rapidly as they should. With some of the big body builders devoting their plants to aircraft production and other work, there should be a shortage of closed car bodies under normal conditions, but there are plenty of bodies to meet the demand.

There is no widespread laying off of men, as was rumored would take place. One Indianapolis concern in particular is producing more cars than it ever produced before and is way behind its orders.

Unrest in Chicago

CHICAGO, Nov. 19—The present uncertainty in the industry as to what the government may do toward curtailing production of cars has caused a decided unrest among dealers. The Mitchell sales organization is dispelling any doubts on the part of its dealers by urging that even should passenger car production be seriously curtailed there would be plenty of work and even if all factories should close dealers could keep going until after the war through service on the five million cars now in the country, and by handling accessories for these cars. In addition to this it might also be pointed out that with five million of any commodity in use there is certain to be a great deal of buying and selling in it, even though it should be such a commodity as used cars.

Campbell Motor Designs New Four

NEW YORK, Nov. 19—The Campbell Motor Car Co., Kingston, N. Y., has designed and constructed a new model to be known as the Campbell Four, selling at $835, with the following general specifications: 110 in. wheelbase, unit power plant, engine 3⅞ by 4, 24 hp. Hotchkiss drive, full floating rear axle and electric starting and lighting. The company has practically completed its reorganization. Its capital consists of $1,000,000 first preferred 6 per cent cumulative, $250,000 in second preferred and $1,750,000 common.

Dodge Light Delivery Is Now Being Shipped

Price Is $885—Very Similar to Passenger Car Except That It Is of Stronger Construction

DETROIT, Nov. 19—The first Dodge Brothers light delivery cars are now being placed in the hands of dealers. The price is $885.

The specifications are similar to those of the standard passenger car, except that various parts have been strengthened. Designed to carry a maximum load of from 1000 to 1500 lb., the springs have been made stronger, the tires are 33 x 4 in. all around, plain tread front and non-skid rear, and the steering knuckles have been strengthened.

The gasoline tank is beneath the driver's seat, and the steering wheel has been set at a higher angle to give a greater loading space. The frame has been strengthened and lengthened so that a loading space of 72 x 43 in. is obtained back of the driver's seat—a large amount for the wheelbase of 114 in., which is the same as the passenger car. The clutch is dry plate type with ball bearing release and the gear ratio is 4 to 1.

The body is especially well designed to meet the varied requirements of a light commercial car. It is pressed steel throughout, with a permanent top and cab measuring 54 in. from the floor of the loading space to the inside of the top. Steel wire screen sides removed and substantial oiled duck curtains are provided for completely enclosing the car.

In the main, the remainder of the specifications are the same as the passenger car, and the finish is a similar black enamel.

Gasoline Yield Increasing

NEW YORK, Nov. 19—The gasoline yield for the first 6 months of 1917 is averaging 20 per cent of the crude oil production, according to the Bureau of Mines at Washington, which has also completed the figures for 1916 on the production of refinery products. Gasoline yield from crude oil is much higher than kerosene, which is only 13 per cent. Lubricating oil averaged 5.8 per cent.

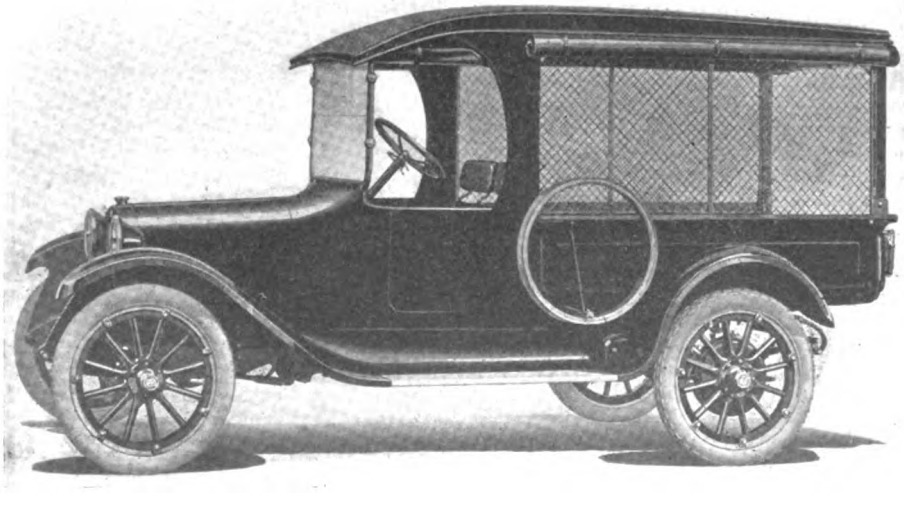
The Burton Process has accounted in part for the high percentage of gasoline yield. There has been an increase during the first 6 months of 1917 over the same period for 1916. The east coast country yielded in 1916 20 per cent of gasoline as against 22 per cent the first 6 months of 1917. The western Pennsylvania and eastern Ohio districts produced 21 per cent of gasoline in 1916 as against 24.6 per cent in 1917. The western Ohio and Indiana fields produced 34 per cent in 1916 as against 36 per cent for 1917. The refinery operations for the first 6 months of 1917 show a yield of 143,189,374 barrels of crude oil; 1,223,379,899 gal. of gasoline; 784,411,291 gal. of kerosene, and 350,358,041 gal. of lubricating oil.

Studebaker Establishes Ohio Branches

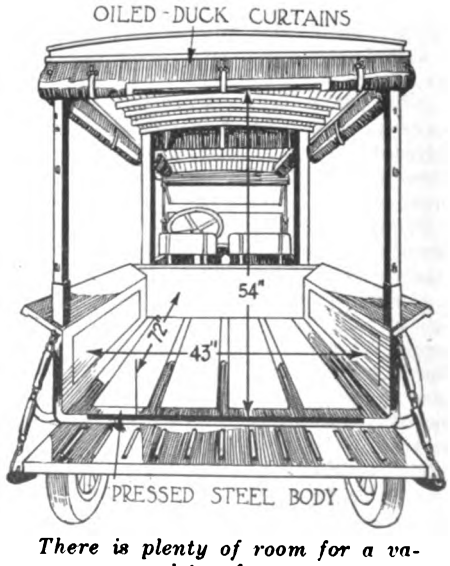
SOUTH BEND, IND., Nov. 19—The Studebaker Corp. has taken over the distribution of Studebaker cars throughout Ohio and lower Michigan by establishing three branches, one at Toledo, one at Dayton, and one at Cincinnati. The Toledo branch is under the direction of A. J. Brechtel, former assistant commercial car sales manager. C. T. O'Donnell, formerly assistant branch manager at New York, becomes a branch manager at Cincinnati, and A. H. Remsen, formerly office manager at the South Bend factory, has been made assistant branch manager at Buffalo. J. C. Dub, formerly retail branch manager at Worcester, Mass., becomes assistant branch manager and retail manager at Cincinnati.

Hudson Has Touring Limousine

NEW YORK, Nov. 19—The Hudson Motor Car Co., Detroit, has brought out a touring limousine selling at $3,150. By raising a glass partition the driver is separated from the passenger's compartment.



The new Dodge Brothers light delivery car has a pressed steel body which may be entirely enclosed with curtains

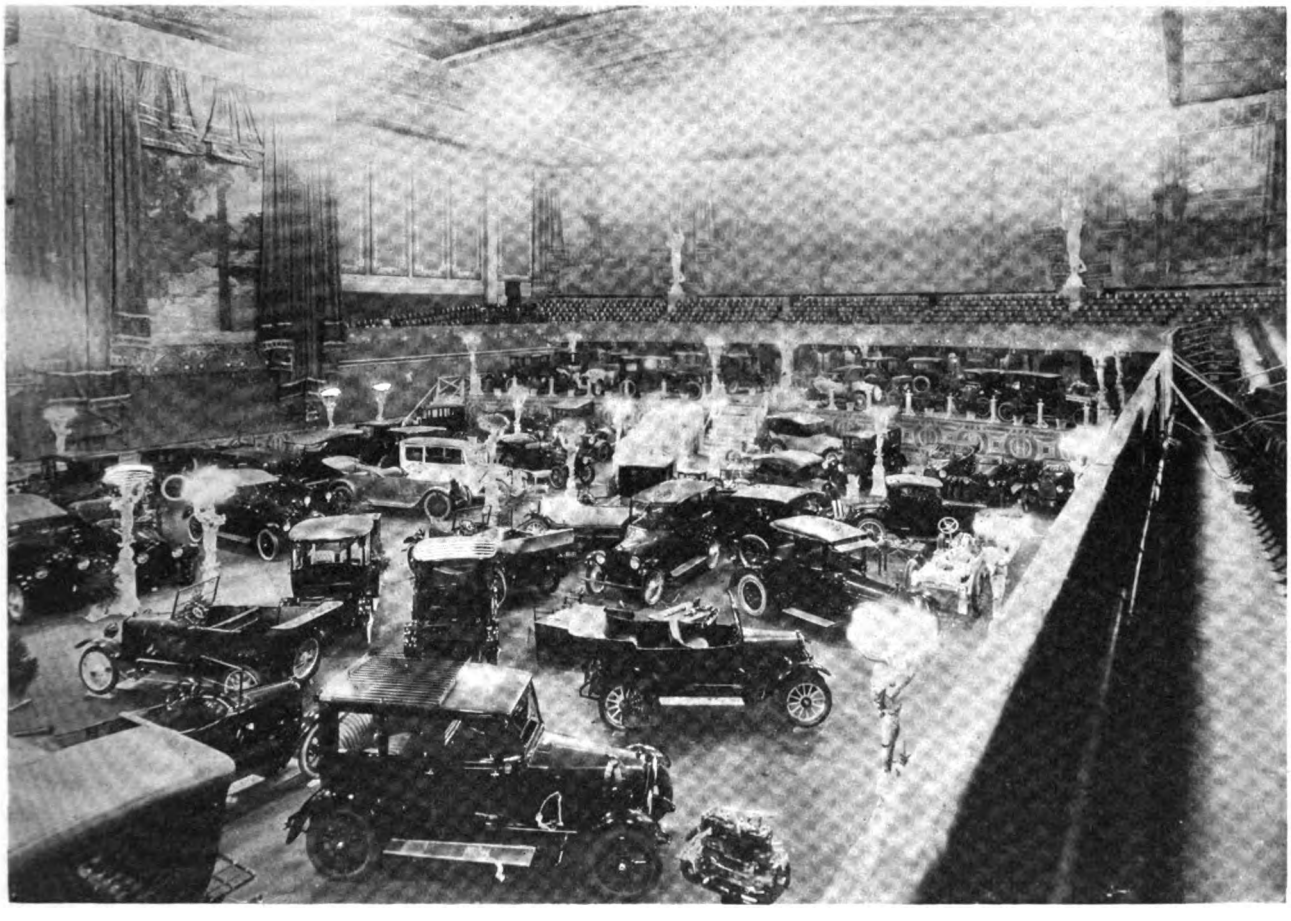


There is plenty of room for a variety of uses

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Need for Cars Makes Denver Show Success

Now One Car to 18 People—Big Part Classed by State Officer as Business Vehicles



This is the second show that Denver dealers have held this year, and is held in the new $450,000 *auditorium. The arrangement of the cars is particularly noteworthy*

DENVER, Nov. 16—It is not remarkable that Denver is this week holding its second motor car show of 1917. Business is good.

Approximately 30,650 motor cars have been bought thus far in 1917 by Colorado, New Mexico and Wyoming, which comprise the main territory supplied by Denver distributers. This is a gain of 50 per cent over last year's total registration of 60,224 for the 3 states. Besides, it is more than twice the 21-per cent tion of 60,224 for the 3 states. Besides, ago by officials of the 3 states when furnishing conservative estimates for Motor World at the time of the Denver motor show last March.

The 1917 increase is made up as follows: Colorado, 21,130, or 47 per cent; New Mexico, 5645, or 68 per cent; Wyoming, 3875, or 54 per cent.

Last year's registration for the district showed a gain of 22,677 cars, or 60 per cent over the 1915 total of 37,547. It would require a gain of only 38 per cent to give next year 35,000 more cars than the present 1917 total of 90,873, and Rocky Mountain distributers believe the territory will furnish at least that big an increase—unless war emergency measures interfere.

So it is not so remarkable, after all, that Denver is holding this week its second motor show this year, or that such healthy trade conditions have resulted in the most elaborate exhibit of this kind ever seen in the entire Rocky Mountain West. More than 100 cars, of half that many makes, are shown by 40 distributers, and there are also 25 accessory exhibits.

A total attendance of 50,000 to 75,000 is predicted for the week, including a goodly number already on hand from points 300 and 400 miles away. The interest has been increased considerably by the first motor trades convention for the district, which has been attended by nearly 200 delegates from the 3 states.

Held simultaneously, the two events have aided each other, and the convention has resulted in organizing the Rocky Mountain Auto Trades Association, which aims to broaden the scope, efficiency and standing of all branches of the motor industry throughout this territory.

The event is being held in Denver's $450,000 municipal auditorium. It is managed by George A. Wahlgren, veteran manager of Denver shows and manager of San Francisco's big show last spring. He is aided by Harry G. Moock and a committee of fourteen members of the Denver Automobile Trades Association, which is in charge of the event. Statuary, wall paintings and other artistic features of decoration were furnished by Leo Lentelli and A. Borghesi. There

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is no jarring effect of banners, etc., and all the exhibitors also agreed not to display price cards.

Car names are displayed by attractive lettering in the cloth shades around electric lamps supported by statues. Both dealers and public declare the event the finest motor show ever yet held here, and sales are coming up to the high standard of other features.

Last spring's event, a private enterprise, was successful, but bad weather prevented the attendance from outside points from meeting expectations. So the dealers declared that a second show this year would be helped rather than hindered by the first, and that the fall would furnish a safer gamble on weather conditions. And it looks as if they had the situation "doped out" about right.

The reason for the heavy sale of cars this year, and for the distributers' strong hopes regarding future years, is indicated by a brief survey of industrial conditions in the district. While there has been no big boom of business and wages here such as has developed in eastern manufacturing centers handling immense orders for war materials, yet there is a steady growth in the main industries, and the motor trade is getting its share of benefit from the added wealth.

High prices of necessities cause a tendency toward retrenchment, to be sure. But high prices received by producers and high wages by workers tend to maintain a strong market for motor cars, especially when such a large proportion are used by *farmers, stockmen, mine operators, engineers, salesmen and others at least partly for business purposes.*

In New Mexico, for example, state officials classify two-fifths of the cars as utility cars, about half of these being used for combined business and pleasure and the rest bought solely for business.

Besides the trucks for both town and country use, about 200 cars were bought there for stage lines to haul passengers, freight and express.

1917 Products Gain $70,000,000

The total value of Colorado products for 1917 is estimated at $408,000,000, as against $338,484,300 for 1916, a gain of nearly $70,000,000. New Mexico's bank resources are $47,778,167, an increase of $11,115,841 over a year ago, while the assessed valuation of all classes of property in the state is now $363,000,000, an increase of $54,000,000 over 1916. Of this amount motor cars represent a valuation of $2,398,234, a gain of $935,801. The license fees in that state total thus far this year more than $80,000. New Mexico shows $45,272,000 in agricultural products this year, a $5,000,000 gain, and livestock and mining products estimated at $46,800,000 and $43,700,000 respectively (no estimate for 1916 output). Wyoming gains have been similar in a general way in oil, mining, agriculture, livestock and manufacturing, although exact figures are not at hand since the close of 1916. That year showed a gain of 2,030,000 barrels and $10,150,000 in oil alone, for example, and a gain of nearly $17,000,000 in assessed property valuation over 1915.

Colorado produced 10,600,000 bushels of corn, 13,536,000 bushels of wheat, 9,150,000 bushels of potatoes and 1,364,000 bushels of beans this year, as against respectively 7,362,000 bushels, 11,885,000 bushels, 6,900,000 bushels and 424,000 bushels. Price gains are shown by $1.35 a bushel as against 76 cents, for corn, and $7.75 per cwt. as against $5 for beans.

Following is a record of the total number of cars registered the last 3 years in the district:

	1915	1916	1917
Colorado	28,571	44,871	66,000
New Mexico	5,000	8,228	13,873
Wyoming	3,976	7,125	11,000

There is now one car for every 18 of the district's 1,600,000 people—a total population equal to about one-third that of the city of New York. And there is plenty of room for millions more of people, billions of dollars more in resources yet to be developed, and hundreds of thousands of motor cars to travel scenic highways completed, begun, planned and promised.

There is one city of 250,000, about a dozen ranging from 5,000 to 50,000, scattered smaller towns, and then—a vast territory of mountains, forests, plains, plateaus, lakes, rivers, canyons, farms, ranches, orchards, irrigation systems, metal and coal mines, smelters, mills, factories, oil wells and refineries (and oil stock salesmen), medicinal springs, waterfalls, fishing streams, big-game wilds, national, municipal and private parks of historic treasure and romantic roads, all forming an attraction for motorists throughout America, and also the rest of the world (even including the re-organized and reformed and re-civilized Germany after the war is over).

Everybody says it is hard to predict car sales for next year; but Secretary of State James R. Noland of Colorado expects to need 83,000 to 85,000 tags during 1918. He had to place at least two orders for extra tags this year, when Colorado's increase alone was more than 8000 beyond the 12,800 counted upon by himself and the New Mexico and Wyoming officials last spring.

More cars are bringing more road interest and more road money, and more and better roads help to increase the market for cars—while helping to haul to market products to buy cars.

In short, car dealers are expressing their view of Rocky Mountain trade prospects by Rocky Mountain sunrise smiles, and are already talking about next year's show and convention.

Kansas City Dealers Hope for the Best

Believe Prospect for Business Is Good and Trust to Government Not to Restrict Too Much

KANSAS CITY, Nov. 16—Within the past five days there has been a return to near normal conditions in the automobile business after fifteen days of what was termed a bad slump in the Kansas City zone. In this self-supporting country where the farmer is getting more for his produce that ever before the dealers are optimistic that something like normal conditions will prevail during November and December, at least for cars selling below two thousand dollars.

The higher-priced merchants expect a sharp decline, because many prospects are considering it unpatriotic to purchase high-priced cars. On the other hand Hudson reports a good enclosed car business out in the territory. There is no doubt that the merchants in this territory are paying more attention to and getting better results from country rather than city business.

Restriction rumors have had glancing effects on the dealers, although the rumors are not so far fetched or as prevalent as in eastern centers. The merchant here knows the Government is going to do something to the automobile business but will not allow himself to feel the regulations will be such as to sound the death knell of Kansas City's third largest industry.

The dealer association here has been keeping the dealer posted on conditions in so far as it is able by extracts from the National Automobile Chamber of Commerce reports. F. W. A. Vesper, St. Louis, second vice-president of the National Automobile Dealers Association, recently delivered an optimistic talk before the dealers here.

It is the consensus of opinion that if the Government curtails automobile manufacturing forty or fifty per cent the retail dealer can live, but if it is cut more than fifty per cent it means the elimination of a large number of dealers. The dealers will not bring themselves to think that the Government will do anything radical that will hurt the opportunity of the Government for getting taxes of various kinds from an industry that is so large a revenue bearer.

Peake More Optimistic

E. E. Peake, secretary of the Kansas City dealers association, has been to Washington and is now more optimistic than he has been in the past, pinning his hopes on the automobile industrial board.

He will not allow himself to think that the Government will do anything to cause a panic in automobile dealer circles, but he does acknowledge that heretofore the way matters were handled it was quite futile to get anything definite at Washington.

Liberty Bond subscriptions are given by the dealers generally as the reason for the slump in business during the 15 day period. This section has enjoyed exceptionally good weather and this, with

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propaganda to allay restriction rumors, has helped to bring conditions both wholesale and retail back to near normal. The farmers in this section are getting more money and have more money than at any previous time.

The dealers are using the leverage that more advances will have to be made in the price of cars and that if the Government cuts production the prices will go 'way higher. This has helped to close a good many sales, dealers acknowledge.

Dealers here do feel that conditions are ripe to help regulate used car evils.

The dealer is peeved that the Government classes the automobile as a luxury and the piano as a necessity. A number of dealers have tried to make slight retrenchments in the handling of their business, but since it is harder to get business it is hard for them to save money, for retrenchment is overbalanced by new merchandising expenditure. The dealers do feel that if the matter takes a serious turn their national organization can be called upon, strengthened and made to do something for their salvation.

Here Is Chalmers Organization

DETROIT, Nov. 15 — Though the changes in the personnel of the Chalmers Motor Co. subsequent to its 5-year lease by the Maxwell Motor Co. have been previously published, the complete list of executives was not announced until recently. Following are the men who will direct the new Chalmers organization: Walter E. Flanders, president; Carl H. Pelton, assistant to the president; Walter M. Anthony, treasurer; John Flint, comptroller; J. H. Johnson, general auditor; Thomas J. Toner, director of sales, in charge of advertising; C. H. Becker, assistant sales manager; Charles Adams, production manager; E. A. Taylor, general superintendent of all factory production; W. K. Swigert, superintendent; William Kelly, engineer; E. J. Miles, engineer; H. M. Jerome, assistant engineer; Roy M. Hood, purchasing agent; Gordon Muir, advertising manager; J. R. Collins, general supervisor of materials. Of the above only four are from the former Chalmers organization, namely, C. H. Becker, H. W. Miller, W. K. Swigert and H. M. Jerome.

Regal Adds 1-Ton Truck

DETROIT, Nov. 15—The Regal Motor Co. will shortly announce a 1-ton truck that will sell in the neighborhood of $1,000 and will be distributed through the present Regal dealers. This truck is driven by the standard Regal 4-cylinder engine, as is used in the passenger cars, but with this exception, the truck is entirely new in design. A feature is to be complete equipment, including starting and lighting and a choice of either express or stake body. These bodies are so designed that for a slight additional expense any one of ten body styles may be constructed. The front tires are 31 x 4 pneumatic and the rear tires are 32 x 4 solid.

Boston Pleased with New National Layout

Believe Extension of Membership Will Help—May Ask Washington for Representation

BOSTON, Nov. 17 — Vice-president John H. MacAlman and Director John H. Johnson, of the National Automobile Dealers' Association, who attended the meeting of the executive officers at Chicago recently, are much pleased at the outcome of the vote changing the by-laws whereby a dealer may become a member without first joining an organization.

It is generally the desire of officers to have the organization represented on the National Defense Board at Washington, because it is felt with 30,000 dealers in the United States some consideration should be given this vast array with all the money they have invested and the large number of employees in their establishments. The matter will be put up to official Washington, it is believed.

Marmon Prices Higher Dec. 1

NEW YORK, Nov. 19—An increase in prices on Dec. 1 will be put into effect by the Nordyke & Marmon Co., Indianapolis. On that date its closed bodies will be from $450 to $1,100 higher and its open cars $400 higher. The sedan will be raised $450 and will sell at $5,000 on Dec. 1. The landaulet will be $550 higher and will sell at $4,650 and the limousine $450 higher, selling at $4,550. The open cars will sell at $3,550, being raised $400.

Cadillac Dealer Holds Salon

BALTIMORE, Nov. 17—There opened last week for the first time in the history of the automobile industry in this city an automobile salon at the fashionable Hotel Belvedere. Cadillac cars are shown exclusively by the Standard Motor Co.

Ask Your Newspapers to Print This Story

Before You Ask Them Read Page 11

THE automobile men of this city have begun an investigation to determine what is to become of them in case motor car factory production is cut down 40 to 75 per cent, as the War Industries Board has indicated would be done.

In this city there are .... dealers and garagemen whose living depends on the sale of cars. Their organizations embrace .... men and women. The families represented are estimated to contain ..... people, all of whom are dependent for a living on the motor car business. The capital invested is about $....., and the motor trade was responsible for the buying of $..... of Liberty Bonds of the last loan.

Many of these bonds are bought on time and cannot be paid for unless the local motor trade is enabled to continue in business.

The local automobile men regret the attitude of the general public, and seemingly also of the War Industries Board, that the motor car is a non-essential, that it is not at all necessary to American life.

This public attitude is regarded as one of the most damaging factors in the situation. The automobile men state that thousands of people who use cars every day for strictly utilitarian purposes have nevertheless come to believe that the car generally is non-essential. These same people, they assert, would not be able to maintain their present business efficiency without their cars.

"How could a physician operate without his cars?" says Motor World of this week. (If desired insert here the name of a dealer in place of Motor World, or, remove the quote marks and let the statement be made by the newspaper.) "How could the farmer do without his car? How could the traveling salesmen of corporations work without their cars? How could the business man maintain his efficiency without his car?

"How could the ordinary citizen do without his car? Let him stop and analyze the use he makes of his car. He will find that he uses it many times a day for other than pleasure purposes. He may have bought it with the idea of pleasure, but he has found that it is a great necessity. It is a principle of world progress that the luxuries of one age are the necessities of the next, and the motor car has progressed far beyond the luxury stage.

"The motor car has made possible the high speed of business and living that makes America conspicuous throughout the world. This speed is now a national necessity more than ever. If it cannot be maintained we cannot win the war and if we wipe out the motor car industry we cannot maintain that speed.

"So far as the luxury element is concerned, it has automatically taken care of itself. Sales of cars in cities have declined. Luxury buyers have ceased to buy. But there is still a strong demand for cars on the part of people who really need them and some provision should be made for this necessity.

"Every American is behind this war first, last and all the time. The patriotism of the automobile trade cannot be questioned. What is open to question is the attitude of the public and the war board.

"The government must have munitions, and much of them must be made by the motor car factories. This does not mean, however, that the factories should be cut down. It means they should be expanded to take care of both car and munitions production. This is very possible and is economically correct. To win the war America must be kept running at top speed, and not curtailed in industry.

"Charles M. Schwab says there is steel enough. The coal men say there is coal enough. Cars can be delivered overland if necessary, and there seems every reason why the factoris, if permitted, can serve the government 100 per cent and at the same time save the motor car industry from ruin.

"But that this may be done there must be a new frame of mind on the part of the government and the people who have set up this government. Each must come to know that ruining an industry is not the way to win a war, and each must realize that in a country like America, where big distances are the rule, the motor car is a prime necessity. Were it not motor car manufacture would not have become America's third greatest industry."

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De Palma Sets a New Record for Six Hours

Drives 616 Miles at Sheepshead—Betters Brooklands Mark by Fifty Miles

NEW YORK, Nov. 16—A new world's 6-hr. record was established to-day by Ralph De Palma at the Sheepshead Bay Speedway, when he covered 616 miles in a Packard Twelve. His actual distance was 633.12 miles, because of the position of the car above the mark set on the track by the American Automobile Assn. designating 2 miles to each lap.

The former record was held by Resta, Chassagne and Guinness, who alternately drove a Sunbeam at Brooklands track in England 566 miles 589 yards on Oct. 1, 1913.

De Palma to-day averaged officially 102.8 m.p.h. for the 616 miles, his actual average for the 633.12 miles being 105.52 m.p.h. At no time during the record trial did his average miles per hour fall below 101. His highest official average was 110, covered in the first hour. The miles per hour, excluding 15 min. 20 sec. stops, was 111.

De Palma in his Packard now holds all records from 10 miles up to 600, regardless of class or free-for-all classifications for cars under 300 cu. in. The car empty weighed 2480 lb. To this may be added the weight of 11 gal. of oil, or 88 lb.; 35 gal. of gasoline, or 227 lb.; 5½ gal. of water, 42; De Palma's weight, 170 lb., and his mechanic, 135 lb. At 111 m.p.h. the revolutions per minute of the engine was 3000, neglecting slippage. The motor travelled 4000 miles before to-day's test, and during the 6 hr. turned over 10,355,500 revolutions.

Gasoline consumption averaged 9 m.p.g., the actual consumption being 67 gal. Eight gallons of oil were taken on. Eight tire changes were made. One right front went 477 miles, when it had to be changed on account of being worn out. Another on the same wheel lasted 52 miles, the tread coming off. Two right rears went respectively 217 and 234 miles and were then changed on account of wearing out. A left front was changed after it had gone 518 miles because of wearing out. Three left rears were changed on account of wearing out after they had gone, respectively 217, 260 and 69 miles.

No stops were made in the first 2 hr. The first stop was made at 228 miles, when two rears and 20 gal. of gasoline were taken on. Two minutes and 29 seconds were lost. No stops were made in the fourth hour. Two rears and a right front were changed at 452 miles, when 20 gal. of gasoline and 5 gal. of oil were also taken on. The time wasted here was 3 min. 57 3/5 sec. A left front tire was changed at 520 miles, after the Packard had travelled 4:55:37.2. One minute and 30 seconds was wasted. At the 524th mile three spark plugs and a left rear tire were changed, losing 6 min. and 3 sec. At 532 miles 23.8 sec. was wasted putting on a right front tire. That was the last stop.

The following gives the distance for each hour:

Hr.	Official M.P.H.	Official Distance	Actual M.P.H.	Actual Distance
1....	110	110	112.96	.....
2....	109.5	219	112.45	224.91
3....	106.9	320.9	109.85	329.56
4....	107.2	428.8	110.14	440.56
5....	104 4	522.0	107.14	535.72
6....	102.8	616.0	105.52	633.12

The former records are as follows:

Hr.	Distance	M.P.H.
1.....	107 miles 672 yd.	107.95
2.....	195 miles 189 yd.	97.55
3.....	287 miles 856 yd.	95.83
4.....	380 miles 628 yd.	95.09
5.....	473 miles 464 yd.	94.65
6.....	566 miles 589 yd.	94.39

The equipment consisted of Goodyear no-hook cords, 35 x 5 in the rear and 33 x 5 in front; Delco ignition and generator; Exide battery; Bethlehem plugs; Zenith carbureter; Rudge-Whitworth wheels, and Motometer. Monogram oil was used.

More Tires from Akron

AKRON, Nov. 17—The Akron Biltwell Tire & Rubber Co. has incorporated for $200,000 to manufacture tools and accessories. Preferred stock to the amount of $250,000 and common stock to $50,000 is being issued. M. Braley is president and general manager; Wm. M. Graham, vice-president, and J. F. Risch, secretary and treasurer.

Robinson Adds the Maxwell

DETROIT, Nov. 12—The L. J. Robinson Co., which in the past has distributed Chalmers cars exclusively, will in the future also handle the Maxwell. A large force of salesmen will be placed in charge of the Maxwell sales and a separate truck department will be organized. This move gives Detroit two Maxwell dealers, the Cunningham Auto Co. continuing the sale of Maxwell as formerly.

N. J. Endurance Contest Nov. 30

NEWARK, N. J., Nov. 19—The annual dealers' endurance run will be held this year. The New Jersey Automobile and Motor Club has decided on Nov. 30 and Dec. 1 as the dates. The run will cover a large part of New Jersey.

42-In. Rule the One Sane Headlight Law

Seven Eastern States Talk It Over at S. A. E. Committee Meeting—Easily Obeyed

NEW YORK, Nov. 19—That headlamp laws are in a state of hopeless chaos and mainly quite useless was agreed by representatives of seven Eastern States who met in New York Nov. 15. The question was discussed with the members of the headlamp division of the Standards Committee of the Society of Automotive Engineers, who were asked to suggest how a law might be made effective. The legislative representatives were shown that the most effective regulation was that of height of light beam commonly called the 42-in. rule, and that it is quite easy to apply this law by the use of very simple apparatus.

The greatest difficulty found in the states where the 42-in. rule is applied is in explaining it to users of cars. There seems to be a prevalent idea that there is something mysterious about it, while it only means tilting the lamp slightly downwards and focusing the bulb properly so as to give a good beam.

To set lamps, the necessaries are a flat surface 75 ft. long and a wall across the end of it. Along the wall. 42 in. from the ground a white line about 6 in. wide should be painted. Then, by placing the car squarely opposite the wall, so that the distance from the lamps to the wall is 75 ft., it can instantly be seen whether the concentrated beam of light rises above the white line or not.

The lamps should first be focused so that they give the best beam, the engine then run at a speed corresponding to 20 m.p.h., so as to give the generator voltage instead of the battery voltage on the circuit and, finally, the lamp brackets should be bent till the beam comes down to the white line or a little below it. The whole job takes less than ten minutes and anyone can do it.

There will probably be a universal law for lamps based on the 42-in. rule now legal in New York and Massachusetts.



THE ROCKY MOUNTAIN AUTOMOBILE TRADES ASSOCIATION was About one-third of the members have already applied for membership in the convention by F. W. A. Vesper, of St. Louis.

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Rocky Mountaineers Organize Three States

Colorado, New Mexico and Wyoming Stir the Trade in Meeting of 200 Delegates

DENVER, Nov. 16—The Rocky Mountain Automobile Trades Association is the name of a new tri-state body just organized by Colorado, New Mexico and Wyoming delegates to the first convention of motor tradesmen representing this extensive territory supplied by Denver distributers. The organization has been launched, speedway style, in 3 days. But it is by no means a spasmodic affair of oratory, shouting, etc., with nothing left but rare mountain air and filed-away-to-be-forgotten resolutions after the passing of a few hours' tumult.

The substantial nature of the convention enthusiasm—genuine Western brand—is indicated by the fact that working by-laws have already been adopted, executive officers and directors elected, a salaried secretary-manager employed to build up the membership and handle the general business affairs, and 75 members both signed and paid up for a year. The officers for the current year are:

President, Frank C. Farquaharson, Trinidad Novelty Works, Trinidad, Col.; first vice-president, W. K. Hurd, Arkansas Valley Motor Co., Pueblo, Col.; second vice-president, W. I. Heath, Universal Motor Co., Greeley, Col.; treasurer, Earl C. Boyle, Casper, Wyo.; secretary and business manager, Harry G. Moock, Denver, assistant manager of Denver Automobile Trades Association's motor show. Directors. B. B. Lummis, Casper Mercantile Co., Casper; Frank R. Dildine, Dildine Garage, Cheyenne, Wyo.; E. R. Hopper, Fort Collins, Col.; A. L. Andersen, Burlington, Col.; A. V. Fagerstrom, Motor Accessory & Tire Co., Pueblo; Charles Owen, Sunday's Garage, Lamar, Col.; A. R. Davis, Raton, N. M.; S. C. Hartman, Hartman Bros., Montrose, Col.; B. K. Sweeney, president of B. K. Sweeney Electrical Co., Denver, and also president of Denver Automobile Trades Association.

Of the 75 members, 20 have applied for membership in the National Automobile Dealers' Association. Vice-president F. W. A. Vesper, of that national body, was one of the chief speakers at the three-day convention.

The new association aims to work with and through local trades bodies and to encourage and assist the forming of local organizations in all the towns throughout the mountain territory. A large membership is promised the central body by the Denver, Colorado Springs, Pueblo and Colo-Mex (state line headquarters at Trinidad) Automobile Trades Associations and the Arkansas Valley Garagemen's Association.

The power to conduct the association's affairs and to pass upon all issues arising is vested in the board of directors. When the board is not in session this power goes to the executive committee, which may dispose of matters.

The annual dues established are $18 on the basis of a membership of 200, $15 if 300 or $12.50 if 400 members are secured. Provision is made to refund charter and early members the proper amount to equalize dues for the current year in case the membership grows enough to reduce the original fee of $18.

A large part of the fast work of the convention is credited to Chairman W. J. Haughey, of the committee calling the convention. In the first place, the "pull-'em-in" invitations sent out by the committee brought 200 delegates to the meeting. Then Haughey insisted upon prompt and conclusive action to effect a definite and permanent organization NOW—not some time after the war.

Plenty of tradesmen from the three states agreed that they needed a central trades body, and that conditions were right to organize. So there was no making tentative plans of the if-perhaps-supposing-maybe-afterawhile sort usually followed by costly delay or inaction.

Committees were appointed and set to work, an authentic record of all proceedings was made by a court reporter, an attorney was on hand to advise, criticize and help wherever needed, and everything was done in a determined, business-like way.

By-laws were drawn up, discussed, torn to pieces and redrafted to meet legal requirements and provide clear and positive working principles for the welfare of the association.



formed by about 200 delegates who went to Denver from three states. the new National Automobile Dealers Association as a result of a visit to second vice-president of the N. A. D. A.

Minneapolis to Shut Up Row Every Sunday

To Have Holiday Like Regular Folks and the Busy Secretary Is to Have More Room

MINNEAPOLIS, Nov. 19—Sunday repair work and Sunday sales of cars are tabooed by the Minneapolis Automobile Trade Association. At its annual meeting Nov. 14 J. R. Histed, of the Twin City Motor Car Co., made a suggestion that all automobile dealers and allied retailers close their places of business Saturday noon and observe Sunday like any other holiday. This means that automobile owners will find one service man on duty to make adjustments and one stock man to issue parts on Saturday afternoons and that telephone calls will not be answered. It also means that all departments will be closed tight all day Sunday.

In addition to the $404,000 subscribed by the trade to the second Liberty loan it was reported $200,000 was added by one dealer.

The association attorney advised that regular dealers who take used cars only occasionally in trade for new cars, should not be included in the operation of the new used-car dealers ordinance requiring registration with the police and daily reports of cars in and out.

The association ordered the size of the offices of the assistant secretary, R. B. Simning, to be enlarged. It was found necessary to have more space.

Under an amendment of the by-laws directors are to be on a rotation basis hereafter. Directors were re-elected as follows: Three years, F. E. Murphy; two years, H. E. Pence, H. E. Wilcox; one year, J. A. Graham, W. E. Wheeler. From among themselves the directors re-elected the following officers: President, H. E. Pence; vice-president, J. A. Graham; secretary, F. E. Murphy; treasurer, W. E. Wheeler.

Canada Would Cancel Duties

QUEBEC, Nov. 17—The Province of Manitoba Food Control Committee has recommended to the Government the removal of customs duties on agricultural implements, farm machinery and cheap automobiles. The resolution was based on the serious food shortage throughout the world and the fact that the Government has urged the Western farmer to produce the largest possible crop of wheat in 1918. It is believed that the removal of duties on these articles which retail at $1,000 or less will greatly aid in increasing production.

A Correction

DETROIT, Nov. 17—The price of the Dort sedan, described in a previous issue of Motor World, is $1,095, and not $1,065, as stated. That of the sedanet is $845, and not $815.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Frank Langdon is a lieutenant in the quartermaster's division of the army. He was formerly assistant advertising manager of the Cadillac Motor Co.

John H. Gariant is production manager of the Harroun Motors Co. He was formerly with Hupmobile and King.

P. J. Dasey is sales engineer of the Buda Co. He was formerly with the Blodget Engineering & Tool Co.

George Kooms is in charge of the service and sales department of the Buda Co. Kooms was formerly experimental engineer.

Charles G. Percival, advertising manager of the Van Cortlandt Vehicle Corp., New York, eastern distributer for the Peerless trucks, has been commissioned a captain in the United States Army, and has been called to the motor equipment department of the Ordnance Department.

Martin Carroll of the Van Cortlandt Vehicle Corp., New York, distributer for Peerless cars and trucks, has been commissioned a first lieutenant in the United States Army in the Ordnance Department.

John Kearney, formerly connected with the wholesale department of Willys-Overland, Inc., New York, has resigned, to take up the position of special representative with Graham Brothers Sales Co., New York.

R. J. Cook has been appointed sales manager of the R. E. Loughney Motor Car Co., Reo and Stutz distributer, in Pittsburgh. He will be in charge of the Reo sales.

A. C. Bennett has been made manager of the Buick branch in Pittsburgh, succeeding A. H. Sarver. Bennett took charge of the branch on Nov. 1.

Pierre Blommers, who has been manager at New York for the Marathon Tire & Rubber Co., has been appointed special factory representative, with headquarters at Cuyahoga Falls, Ohio.

B. L. Niles, formerly western manager for the Republic Rubber Co. at Kansas City, becomes New York manager of the Marathon Tire & Rubber Co., succeeding Pierre Blommers.

Harry W. Miller is assistant sales manager and service supervisor of the Chalmers Motor Co.

E. Harvey Mendel, for the past 18 months sales manager of the Rex Ignition Co., New York, resigned Nov. 15. He has not announced plans for the future.

R. G. Nelson has been appointed superintendent of districts by the McGraw Tire & Rubber Co. He will have general supervision of all district offices. **C. E. Pumphrey,** formerly St. Louis district manager, assumes the duties of assistant sales manager, with headquarters at East Palestine. **R. J. Delevan,** formerly a special representative, becomes St. Louis district manager.

Tom Selby, formerly with the Dry Climate Rubber Co., Denver, has been appointed production manager for the Toliver Tire & Tube Co., Denver, which has started to manufacture its own tubes.

John H. Diehl, sales manager of the Mason Tire & Rubber Co., has been elected a director of the company.

Walter E. Holland has been made research engineer for the Philadelphia Storage Battery Co., Philadelphia.

James C. Mullen has been made general sales manager of the Chandler Motor Co. of New England, Boston.

Harry E. Damon is southern representative of the Anderson Electric Car Co.

F. L. Sanford has been appointed manager of the New York branch of the Studebaker Corp. He succeeds "Pop" Jewell, who has purchased an interest in a Philadelphia Studebaker distributing agency.

J. C. Ayers has been elected vice-president and placed in general charge of sales and advertising of the Denby Motor Truck Co., Detroit.

C. R. Murphy, Green Bay, Wis., has been elected secretary of the Lawson Aircraft Corp., Green Bay, to succeed C. I. Smith, who resigned because of the press of other business interests.

L. L. Williams is now designer and production manager of the Lang Body Co., having resigned from the Peerless Motor Car Co. The factory of the Lang Body Co. is at West 106th Street, and it is expected the production will be started on a yearly schedule of 3000 bodies about Jan. 1.

C. L. Brott, a former resident of St. Louis and an official of the John Deere Plow Co., in this city and at the factory, has joined the Dort Motor Car Co., to become a district manager.

Hamilton Clive, formerly district manager for the Standard Motor Truck Co., with headquarters in St. Louis, has joined the force of the Federal Truck Co. of St. Louis.

P. A. Eisesser, for 25 years connected with the Martin Carriage Works and the Martin Truck and Body Corp., York, Pa., severed his relation with that organization this week, and for the present will devote all his time in the Y. M. C. A. war work.

T. B. Entz, president of the Entz Automobile & Battery Co., St. Louis, will join the staff of the Gould Storage Battery Co. as engineer to work on submarine battery problems. **Ernest Board,** secretary of the Entz Co., will succeed to the management of that company, and **M. J. Cline,** formerly secretary of the Battery Service Co., will take charge of the Philadelphia company's interests.

J. D. Barth, St. Louis, has been named retail sales manager for the truck department of the Rottersmann Automobile & Truck Co. He was recently in charge of the Oldsmobile wholesale business in this territory.

W. L. Vickers, manager of the Used Car Exchange Co., St. Louis, which company sells used cars for the Packard and Park companies, has been made manager of the used car department of the Brandle Motors Co. **Harry H. Kraleman,** assistant manager of the Used Car Exchange Co., has been promoted to manager.

A. H. Dewees, purchasing manager of the Saxon Motor Car Corp. for the past 2 years, has resigned. He has not as yet announced his plans for the future.

E. E. Bell has been appointed manager of the used car department of the New York branch of the Studebaker Corp. He succeeds **C. E. Ackerman,** who will assume an executive post with the Studebaker Corp. in Los Angeles.

C. G. Barbour and **E. G. Norwalk** have been added to the force of traveling representatives of the Bearings Service Co. of Detroit, to develop the recently inaugurated campaign of establishing 450 service agencies for the company in all sections of the United States.

Charles F. Coe has been appointed manager of the New England branch of the Chevrolet Motor Co., Boston.

A. H. Allen, formerly at the Packard Motor Car Co., Detroit, and later with Alvan T. Fuller, Boston, has been appointed general sales manager of the Oldsmobile Co. of New England, Boston.

Francis X. Coveney, formerly with the Studebaker and Packard companies in Boston, is now identified with the Winton Motor Car Co., Boston.

D. C. Briggs, who resigned as manager of the New England Chevrolet branch, has joined the Oldsmobile Co., of New England, Boston.

Weldon McKone has been made general sales manager of the Connell & McKone Co., Boston, Overland distributer. C. E. Stewart succeeds him as retail sales manager.

Frank Hoddinnott, for a number of years in the accessory field has joined the sales force of the Auto Outing Co., Baltimore, Buick distributer.

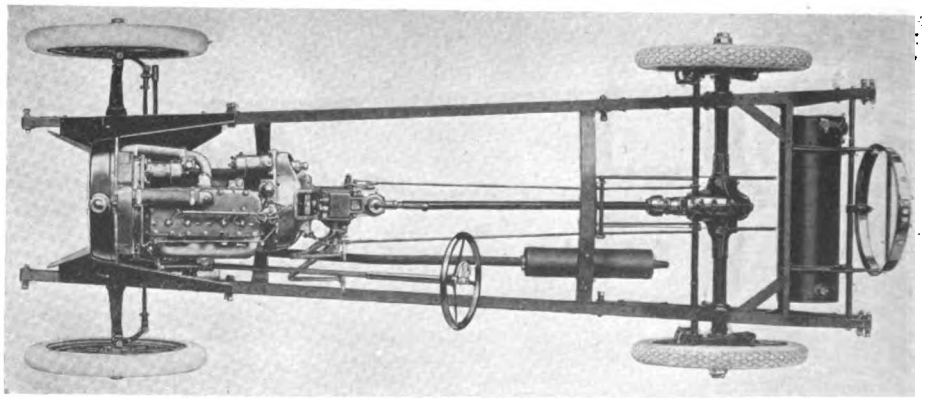
Albert A. Herford, with a sales record in another field has joined the sales force of the Auto Outing Co., Baltimore.

C. T. Riley, for a number of years with Eliason Brothers Motor Co., selling Oaklands, is now on the sales force of the United Auto Sales Co., Baltimore, Studebaker and Garford distributer.

S. D. Sadtler, at one time service superintendent for the Motor Car Co., Overland distributer, is now selling Garford trucks for the United Auto Sales Co., Baltimore.

Charles A. Mather, formerly of J. G. Duncan, Jr., Philadelphia, has joined Reus Brothers Co., Baltimore.

H. A. Conlon, formerly assistant sales manager of the Federal Motor Truck Co., has joined the Acason Motor Truck Co., Detroit. He will visit dealers throughout the East and South during November and December.



This is a view of the Series R Hupmobile chassis, a description of which appeared in Motor World last week. Through an error a chassis other than that of the Hupmobile appeared with the description last week.

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95 Car Makers Buy Space at Big Shows

New York Will See 84 of Them and Chicago 90—245 Accessory Makers Take Space

NEW YORK, Nov. 19—Six more automobile exhibitors have been added to the list at the New York show and ten more to Chicago. Allotment of space has also been given to 127 new accessory exhibitors, making a grand total of ninety-five different makes of car and 245 of accessories that will be exhibited at the two shows. Of the ninety-five makes of car the New York list now includes eighty-four and the Chicago show ninety.

Following is the list of the new car exhibitors:

New York

American Motors Corp.....New York
Camden Motors Corp.....Camden, N. J
Doble-Detroit Steam Motors Co.....Detroit
Harroun Motors Corp.....Detroit
Moore Motor Vehicle Co.....Minneapolis
Stanley Motor Carriage Co....Newton, Mass.

Chicago

Anderson Motor Co..... Rock Hill, S. C.
Comet Automobile Co.....Decatur, Ill.
Dixie Motor Car Co.....Louisville, Ky.
Doble-Detroit Steam Motors Co.....Detroit
Harroun Motors Corp.....Detroit
Maibohm Motors Co.....Racine, Wis.
Monitor Motor Car Co.....Columbus
Moore Motor Co.....Minneapolis
Olympian Motors Co.....Pontiac
Pan-American Motors Corp.....Decatur, Ill.

The New Accessory Exhibitors

New York Only

Adams-Williams Mfg. Corp.....New York
Alexander, J., Mfg. Co.....New York
American Express Co.....New York
Armstrong Rubber Co., Inc.....New York
Asch & Co., Inc.....New York
Atherley, R. J.....New York
Auto Pedal Pad Co., Inc.....New York
Automatic Carbon Eliminator Co...New York
Auto Parts Mfg. Co.....Milwaukee
Barnes Foundry Co.....Jersey City
Campbell, A. S., Co.....Boston
Carrm Universal Auto Body Co....New York
Chadick-DeLamater Corp.....New York
Coe-Stapley Mfg. Corp.....New York
Common-Sense Mfg. Co.....Newark
Corcoran Mfg. Co.....Cincinnati
Cox Brass Mfg. Co.....Albany
Crew Levick Co.....Philadelphia
Eastern Super Spark Co.....New York
Electric Automatic Cigar Lighter Co. New York
Essex Rubber Co., Inc.....Trenton
Faw, J. H., Inc.....New York
Foot Air Accelerator Co.....New York
Fordham Chemical Co., Inc.Long Island City
Frasse, Peter A. & Co., Inc.....New York
Grossman, Emil Mfg. Corp.....Brooklyn
H. & N. Mfg. Co., Inc.....New York
Hart-Bell Co.....New York
Holmes, Geo. L.....New York
Holophane Glass Co., Inc.....New York
Hoover Tire Carrier Corp.....New York
Hoover, W. H., Co.....New Berlin, Ohio
Houpert Machine Co.....New York
Hydro-Eye Co.....New York
International Coat Co.....New York
J. & B. Mfg. Co.....Pittsfield, Mass.
Jauhasz Carburetor Co.....New York
Keystone Rubber Mfg. Co.....Erie, Pa.
Lacharnay Carburetor Co.....Paterson
Langlands, Eric.....New York
Lowe Motor Supplies Co.....New York
Many-Use Oil Co.....New York
Martin, James .....New York
Marvel Accessories Mfg. Co.....Cleveland
Miller, Chas. E.....New York
Moreau & Pratt, Inc.....New York
Motor Car Equipment Co.....New York
Motor Highway .....Lincoln, Neb.
Mutty, L. J., Co.....Boston
Nugo Device Corp.....New York
Petry, N. A., Co., Inc.....Philadelphia
Play Safe Co.....Brookville, Pa.
Pouvailsmith Corp.....Poughkeepsie
Primolite Sales Co.....Westfield, N. Y.
Rich, H. C., Auto Accessories Co...New York
Smith Signal Corp.....New York
Speer Carbon Co.....St. Mary's, Pa.
Stanley, John T., Co., Inc.....New York
Stewart, F. W.....Chicago
Story Corp.....New York
Stroock, S., & Co.....New York
Super Lighting Co., Inc.....New York
Triple Action Spring Co. of N. Y., Inc. New York
U-Auto-C Corp.....New York

Chicago Only

Adamson Mfg. Co.....East Palestine, Ohio
Johnson Automobile Lock Co.....Chicago
L. Lawrence & Co.....Newark
Mason, Arthur C., Inc.....Paterson, N. J.
Ogden Mfg. Co.....Plymouth, Ind.
Sipp Machine Co.....Paterson, N. J.
Syracuse Wrench Co.....Syracuse, N. Y.
Tobey Polish Co.....Chicago
Tuthill Spring Co.....Chicago
Wales-Adamson Co.....Chicago

Chicago and New York

Advance Automobile Access. Corp....Chicago
Amazon Rubber Co.....Akron
Amer. Chauffeur Pub. Co.....Cincinnati
American Sleeve-Valve Motor Co...New York
Armstrong Cork Co.....Pittsburgh
Auto Gear Co., Inc.....New York
Automatic Transmission Co., Inc...New York
Automobile Devices Co.....Philadelphia
Brewer-Titchener Corp....Binghamton, N. Y. (Crandall, Stone & Co.)
Class Journal Co.....New York
Connecticut Clock Co.....Hartford
Curtis Pneumatic Machinery Co....St. Louis
Detroit Kerosene Carburetor Co.....Detroit
Eastern Rubber Co.....Philadelphia
Essenkay Products Co.....Chicago
Eureka Rim Compressor Co...Addison, N. Y.
Fulton Co.....Knoxville, Tenn.
G. L. W. Spring Oiler Co.....San Diego, Cal.
H. & D. Co., Inc.....Goodland, Ind.
Holt-Welles Co., Inc.....New York
Horseless Age .....New York
Humboldt Machine & Stamping Co. Long Island City
Improved Gauge Mfg. Co.....Syracuse
Inland Machine Works.....St. Louis
Interstate Electric Co.....New Orleans
J. H. Tonneau Shield Co.....New York
Jiffy Jack Co.....Cleveland
K-W Ignition Co.....Cleveland
Lane Bros. Co.....Poughkeepsie
Lubriko Co.....Philadelphia
McQuay-Norris Mfg. Co.....St. Louis
Merrimack Mfg. Co.....Lowell, Mass.
Militaire Motor Vehicle Co.....Buffalo
Motor .....New York
Motor Car Spring Co.....New York
Motor Mechanics .....Cleveland
Motor Vehicle Pub. Co.....New York
Prismolite Co.....Columbus
Saferlite Lens Co.....New York
Sharp Spark Plug Co.....Cleveland
Spencer Metal Products Co.....Spencer, Ohio
Sterns Tire & Tube Co.. Inc.....St. Louis
Twin Fire Spark Plug Co.....Detroit
United Engine & Mfg. Co.....Hanover, Pa.
U. S. Air Compressor Co.....Cleveland
U. S. Gauge Co.....New York
Universal Tool Co., Inc.....Detroit
Wasson Piston Ring Co.....New Brunswick
Weaver Mfg. Co.....Springfield, Ill.
West Steel Casting Co.....Cleveland

Show Building Given to Dealers by Papers

Philadelphia Didn't Know Where to Hold a Show Until Newspapers Solved the Problem

PHILADELPHIA, Nov. 19—The 1918 automobile show of the Philadelphia Automobile Trade Association was made possible through the acceptance of an offer by that association, made by the Philadelphia Press and Evening Telegraph, of the gratuitous use of the big seven-story Wanamaker Garage Building at Twenty-third and Walnut Streets. It was made available through the generosity of Rodman Wanamaker, proprietor of these two papers. The show will be held Jan. 11 to 19.

The show committee had almost despaired of holding a show because the Government had taken over the Commercial Museum, which they had engaged for the purpose, and the only other available building was that of the Gomery-Schwartz Motor Car Co., Hudson distributer, but there was some question as to whether the necessary conditions could be met to utilize this new structure. At this stage the Philadelphia Press and Evening Telegraph enlisted the interest of Mr. Wanamaker for the loan of three floors of his garage building for show purposes with the result that he offered it free of cost as a courtesy from his two papers. The building is a modern fireproof brick and concrete structure covering an entire square from Twenty-third to Twenty-fourth Street and from Walnut to Locust Street, within a few blocks of the center of the automobile district. The available show space comprises 72,000 sq. ft. admirably lighted and each floor being easily connected with the others by means of ramps with a gradual ascent. It is steam heated and it lends itself peculiarly to show purposes.

In order to make the building available the management of the garage was obliged to move a large portion of its own business to other quarters at a considerable expense.

The show committee announced that they had awarded the annual $50 prize for the best show poster design to William Gordon Thayer, a well-known Philadelphia artist. The committee is composed of J. H. Fassitt, president and chairman of the committee; A. E. Maltby, vice-president of the association; Lee J. Eastman, J. E. Gomery, secretary and treasurer; Louis C. Block and Wm. P. Herbert, honorary member and former president of the association.

Graham Bros. Dealers Meet

EVANSVILLE, IND., Nov. 17—The first annual Eastern convention of dealers and distributers of Graham Bros. will be held Nov. 21 at the Knickerbocker Hotel, New York.

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Summary of Business Conditions Throughout the Country as Outlined in Monthly Reports by Federal Reserve Banks

	District No. 1—Boston	District No. 2—New York	District No. 3—Philadelphia	District No. 4—Cleveland	District No. 5—Richmond	District No. 6—Atlanta
General business	Hesitant, except for war orders.	Active and well maintained.	Good	Good	Highly satisfactory	Good.
Crops:						
Condition		Fair	....do	....do	Yield satisfactory: prices high.	Do.
Outlook		Harvest good		Very good		Do.
Industries of the district	Busy for the most part.	Generally very active.	Very busy	Fair, but uneasy tone.	Running full time	Operating fully.
Construction, building and engineering.	Well up to previous high record.	Very quiet	Very dull	Poor	Private building limited; Government work in large volume.	Slow.
Foreign trade	Good	Heavy, measured in value, particularly exports.	Large		Limited by restrictions and scarcity of freight room.	Do.
Bank clearings	Increase	Decrease	Decreasing	Increase	Increase	Increasing.
Money rates	Temporarily decreasing.	Steady at moderately firm rates.	No change	Firm	Plentiful at 5 to 6 per cent.	Slightly increasing.
Railroad, post office and other receipts.	Decreased	Railroad receipts heavy; telegraph tools very much increased.	Increasing	Increase	Increase in gross receipts absorbed in increased operating costs.	Good.
Labor conditions	Unsatisfactory	Labor supply hardly adequate.	Unsettled	Restive	Scarce and wages high.	Fair.
Outlook	Uncertain	Good	Good	Not unfavorable	Satisfactory	Good.
Remarks				Fuel, labor and transportation difficulties quite troublesome.	Flush times would hardly be an exaggeration of conditions in the district.	

	District No. 7—Chicago	District No. 8—St. Louis	District No. 9—Minneapolis	District No. 10—Kansas City	District No. 11—Dallas	District No. 12—San Francisco
General business	Good	Active	Active	Averages 25 per cent over last year.	Satisfactory	Active.
Crops:						
Condition	....do	Excellent		Corn good	Fair	
Outlook	....do			Good	....do	
Industries of the district	Active	Active	Active	Very busy and behind with orders.	Active; running full time.	
Construction, building and engineering.	Slow	Decrease	Fair to good	Fair	Slight decrease	Slight decrease.
Foreign trade					Export trade decrease.	Increase.
Bank clearings	Increasing	Little change	Up	40 per cent over last year.	Increase	Do.
Money rates	Firm	Firm	Firm	No appreciable change.	Firm; ample funds for legitimate requirements.	Firmer.
Railroad, post office and other receipts.	Post office increasing.	Increase	Strong	Good volume	Increase	Increase.
Labor conditions	Shortage	Labor scarce; somewhat unsettled.	Good	Improved; increased shortage.	Acute shortage	Disturbed.
Outlook	Good	Good	Very good	Good	Encouraging	For active industry and large trade.
Remarks		Cotton late; early killing frosts reported.		Conditions arising from Government regulations becoming more settled.	Business situation satisfactory; outlook good except in south central and western Texas.	

No Foreign Assembly of U. S. A. Trucks

WASHINGTON, Nov. 15—A proposal has been made to the United States Government to ship the new U. S. A. war trucks partly assembled and assemble them there, thus permitting a saving of approximately $330,000 on 10,000 trucks, in addition to saving considerable time. The offer, which was made by Flint & Co. of New York, a large exporting house, has been turned down by Quartermaster General Henry J. Sharpe. The plan contemplated the assembly of trucks in a plant at Neuilly-sur-Seine and the training of drivers at large plants which the Flint company claims to have at its disposal.

Automobile Industries Committee

WASHINGTON, Nov. 15—The committee which has been appointed to represent the automotive industries and to work with the War Industries Board will bear the official title Automobile Industries Committee. Offices have been opened in the Munsey Building. The committee comprises A. W. Copland, chairman, representing the M. A. M.; Hugh Chalmers, representing the N. A. C. C., and John R. Lee.

Headquarters for Columbus Trade

COLUMBUS, Nov. 17—The Columbus Auto Trades Association has opened permanent headquarters in the Virginia Hotel.

Iowa Has 277,607 Cars

DES MOINES, Nov. 17—There are now registered in the State of Iowa 277,607 motor cars. This is a gain over 1916 of 110,569. The number of dealers registered is 3507.

One at a Time

ST. LOUIS, Nov. 17—The Newell Motor Car Co., distributer of Haynes and Paige cars, has adopted the policy of showing only one line of cars at a time in its showrooms. Usually only one type of car is shown, this in three or four positions if the stock on hand permits.

Foreign Orders May Hold Up Ford Tractors

DEARBORN, MICH., Nov. 15—Henry Ford has offered to supply France with 12,000 Ford tractors after the 6000 now building for England are completed. If this offer is accepted, delay in placing the tractor on the American market will be necessitated. The present English order will keep the plant busy until early in the spring, and if France desires tractors, America will not get them until late Summer. At present many additions are being made to the plant, and production is rapidly increasing. The tractors are being fitted with lights for night work. No price has been placed on the tractor for American markets.

Fulton Gets Ampeco Sales

CHICAGO, Nov. 17.—The Fulton Sales Co., 910 South Michigan Boulevard, has been appointed exclusive sales agent for the American Machine Products Co., manufacturing Ampeco pistons and accessories for Fords.

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Plan Detroit-Toledo Truck Train Schedule

Fleet of Motor Trucks to Be Used to Relieve Freight Congestion—Use Trailers

DETROIT, Nov. 17—Trucks running on a regular schedule between this city and Toledo are to be used to relieve the freight congestion which has been so marked for the past year. At present a corporation of Detroit business men is being formed which will purchase a fleet of trucks and trailers. It is probable that there will be at least four trains each way consisting of 5-ton trucks and two 5-ton trailers and carrying a total tonnage of 120 tons. Traffic rates have not been as yet settled, but will doubtless be a little less than the present freight rates.

The Michigan War Preparedness Board has voted the expenditure of $35,000 for completion of the road between Detroit and Toledo. Monroe County will contribute $15,000 for a temporary road for truck transit to be used while the permanent road is being rushed to completion.

McGraw Increases Warehousing Facilities

EAST PALESTINE, OHIO, Nov. 15—The McGraw Tire & Rubber Co. recently let contract covering the erection of a crude materials warehouse. The new building will be 228 x 60. From present indications, the structure will be fully completed and ready for occupancy by Dec. 1.

Packard Profits Amount to $5,400,691

DETROIT, Nov. 19—The annual report of the Packard Motor Car Co. shows that the net profits for the fiscal year ending Aug. 31, 1917, amount to $5,400,691. After allowing for all depreciation charges and for dividends on preferred stock, a balance equivalent to 40.9 per cent on the $11,840,930 outstanding common stock is shown. The assets of the company reported at this time are $28,732,014, and the property investment, less depreciation, is $14,814,029. The directors were all re-elected and are F. M. Alger, R. P. Joy, R. A. Alger, P. M. McMillan, Alvin McCauley, Henry B. Joy and T. H. Newberry. The officials likewise were re-elected: Alvin McCauley, president and general manager; R. A. Alger, vice-president, and P. M. McMillan, secretary and treasurer.

Electric Welder Reorganizes

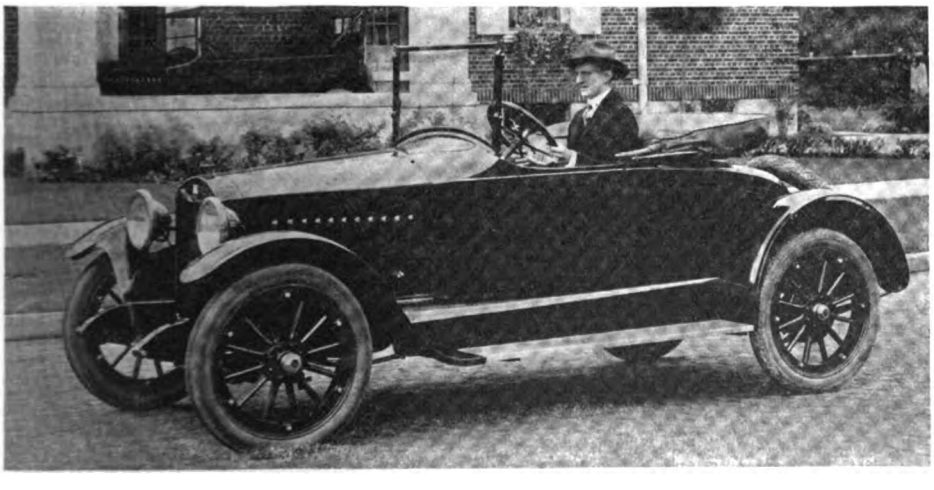
LANSING, Nov. 17—The Electric Welder Co. has reorganized and recapitalized in order to carry out an increased production and distribution plan. H. F. Harper is president and James J. Carey, L. Clyde Smith, Frank E. Fisher and Harry M. Lee are directors. This company moved to Lansing about a year ago, and its production is devoted almost exclusively to an electric starter for Fords.

Washington Office for M. A. M. and N. A. C. C.

WASHINGTON, D. C., Nov. 17—The Motor Accessories Manufacturers and the National Automobile Chamber of Commerce will open and maintain joint offices in Washington during the war for the purpose of establishing points of contact between the automobile industry and its official committee and all other committees.

Woodruff is Managing Saxon

DETROIT, Nov. 15—Active control of the Saxon Motor Car Corp. is now in the hands of Charles Woodruff, general manager, who was formerly purchasing agent for the Chalmers Motor Car Co. Harry Ford, president of the Saxon company, is at present in a Battle Creek sanitarium, where he will remain for some time prior to going to California. Though Ford is not taking an active interest in the affairs of the Saxon company, he still retains the presidency and his position on the board of directors.



The Liberty Motor Car Co., Detroit, has added a 2-passenger roadster, mounted on the standard chassis of 115-in. wheelbase. It sells for $1,350. Among the special features are Collins curtains. Doors are 23 in. wide, and beneath the rear deck is a large storage compartment. This compartment is equipped with a lock. The color scheme is blue with straw colored wheels. The driver's seat is adjustable.

Gasoline Restriction Is Not Contemplated

Fuel Administrator States There Is No Danger of Curtailment—Economy to Be Urged

WASHINGTON, D. C., Nov. 15—Fuel Administrator Garfield announced to-day that motor car owners are not in any danger of having gasoline curtailed and that a survey of the entire country has not shown the oil and gasoline situation to be acute and that for the present no steps would be taken to restrict the use of such fuel for motive power.

The administrator stated that he would, however, inaugurate campaigns to reduce wastefulness of gasoline and to educate car owners how to cut down gasoline consumption.

79,675 Fords Produced in October

DETROIT, Nov. 15—The October production report of the Ford Motor Co. states that 79,675 cars were manufactured, bringing the total for the past 6 months up to 469,135. At this rate the yearly production will be 938,270 cars, though the estimated production is 900,000. Unless war conditions prevent, the production for the current fiscal year, which runs from Aug. 1, 1917, to Aug. 1, 1918, will be 1,000,000 cars. Demand is constantly ahead of production, and since the first of last August the company has never been less than 100,000 cars behind orders for immediate delivery.

Friend Resigns Mitchell Presidency

CHICAGO, Nov. 19—Otis C. Friend has resigned as president of the Mitchell Motors Co. and is succeeded by D. C. Durland who for the past 23 years has been actively associated with the management of the General Electric Co. Friend has not announced any plans for his future. R. C. Rueschaw, who has resigned as director and sales manager of the Reo Motor Car Co., has been elected vice-president of the Mitchell company.

Auto-Lite Service Convention

TOLEDO, Nov. 17—The Electric Auto-Lite Corp. held a three-day service convention last week, about 200 delegates being present.

Scrap Metal Prices

NEW YORK, Nov. 16—Following are the prices paid by New York dealers for scrap metal during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible	22.00
Copper, heavy and wire	21.00
Copper, light and bottoms	19.00 to 19.50
Brass, heavy	15.00 to 15.25
Brass, light	10.50 to 10.75
Heavy machine composition	20.50 to 21.50
No. 1 yellow brass turnings	14.75 to 15.25
No. 1 red brass or composition turnings	17.50
Lead, heavy	4.75
Lead, tea	4.00
Zinc	5.75

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1295	†1295	1295	....	1920	....	....
6-60	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN-SIX																	
A	6-3½x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Conn	Zenith	Wsths	DP	3	120	33x4	SS	....	1435	....	....	2165	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	34x4	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	23.4	Remy	Rafid	Remy	DP	3	120	34x4	SS	1295	1295	....	....	....	....	1545
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	†1635	1635	....	2400	....	1935
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BELL																	
17	4-3½x5	19.6	A.Kent	Zenith	Dyneto	D	3	112	31x4		....	895	....	....	....	....	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2200	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1385	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3 1/16x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	....	....	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1465
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 / 125	35x5 / 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
T17	4-3½x6	21.0	Conn	Rafid	A-Lite	C	3	120	34x4	SS	†1190	....	1190	....	....	....	....
U	6-3½x5½	28.4	Wsths	Rafid	Wsths	D	3	125	35x4½	....	....	....	1875	....	....	....	....
CHALMERS																	
6-30	6-3½x4½	25.4	Remy	Stmbg	Wsths	DP	3	{117 / 122	32x4 / 34x4	SS	1250	1250	1350	1625	1850	2925	....
CHANDLER																	
17	6-3½x5	29.4	Bosch	Rafid	G & D	D	3	123	34x4	SS	1595	....	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	635	635	....	....	1060	....	....
FA-5																	
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.45	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	†1385	....	{2495 / 2695}	....	....
COLE																	
860	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1995	....	1995	2495		....	....
COLUMBIA																	
	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1350	....	....	1995	....	....
COMMONWEALTH																	
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	110	32x3½	C	†935	995	....	....	....	....	....
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114½	32x3½	SS	†995	{935 / 995}	....	1195	1275	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†3100	3100	3100	....	....	....	....
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	1295	1295	1295	1995	1795	....	1995
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1595	1595	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D		119	33x4	SS	‡1395	1395	†1435	....	1875	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	36x3½	QD	1135	....	1210	1400	....	....	....
DIXIE FLYER																	
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†895	895	....	....	1295	....	....
DOBLE	2-5 x4	....	Own	Dobl Stmb	Wagner			135	35x5	....	....	....	2500	....	....	....	....

Model	Motor	S. A. E.	Ignition	Carburetor	Starter	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MADISON																	
4	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	115	34x4	SS	†1485	1485	1485	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795	....	....	....	....	....	....
MARION HANDLEY																	
6-40	6-3½x5	23.4	Wsths	Stmbg	Wsths	DD	3	120	32x4	SS	†1350	....	1350	....	....	....	....
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	†1650	....	1650	....	2350	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	4950	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	‡745	745	....	1095	1095	1095	855
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Raceabout	3250	....	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1575	1575	....	.....	..	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1950	....	1950	2490	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	110	32x3½	SS	995	995	....	....	....	....	....
N-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	†635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	1095	....	....	....	....	....
MOON																	
6-36	6-3 x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	....	....	....	1195	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafid	Delco	DD	3	118	34x4	SS	‡1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2450	2450	....	....
MURRAY																	
1918	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	..	2800	2800	2800	3300	....	3750	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-684	6-3½x5	25.4	Delco	Marvel	Delco	P	3	121	34x4	SS	1295	1295	....	....	1965	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.7	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	‡990	990	....	{1150 / 1490}	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	....	....	....	....
37	6-2½x4½	18.9	Delco	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	37	Conn	Carter	A-Lite	D	3	114	32x3½	....	†965	965	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	‡915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	{104 / 106}	31x4	C	780	795	†840	....	1240	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.6	Bosch	Zenith	O-M	OM	6	136	35x5	SS	‡3950	‡3950	3950	....	....	5000	....
PACKARD																	
3-35	12-3 x5	43.2	Delco	Own	Bijur	DD	3	{136 / 128}	35x5	QD	....	3700	4100 / 3700	5050	....	5650 / 5250	....
3-25																	

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DODGE BROTHERS																			
	4-3½x4½	24	Delco	Stewart	N.R.	D	3	114	32x3½	SS		825	825	....	1350	1350	....	....
DORRIS																			
I-C-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	130	36x4½	SS		....	....	2785	3225	3250	4150	....
DORT																			
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	105	30x3½	QD		†725	725	....	....	1095	....	845
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS		845	845	†845	....	....	....	....
ELGIN																			
	6-3 x4½	31.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....		†1095	1095	....	1645	....	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS		1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.4	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS		†1345	1375	....	....	....	....	....
FIAT																			
55	4-5½x6½	42	Bosch	Zenith	Wsths	D	4	140	35x5	QD		....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	....	D	2	100	30x3½	rC		345	360	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4 (33x4½	SS		2000	2050	....	2850	2950	3300	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS		....	1395	....	....	1595	....	....
GRANT																			
K	6-3 x4½	31.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....		‡875	875	....	....	....	....	....
HAL TWELVE																			
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS		2600	†2600	2600	....	3500	4500	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS		‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS		1385	1385	....	....	....	....	....
HARROUN	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....		..	785	....	....	....	....	....
HARVARD	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....		750	....	....	....	....	....	....
HOWARD																			
	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....		750	....	....	....	....	....	....
HAYNES																			
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS		....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS		†1725	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS		....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS		†2225	....	2225	....	2890	....	....
HOLLIER																			
196	6-3 x4½	21.6	Remy	Stewart	Apleo	C	3	116	32x3½	SS		....	1085	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Apleo	C	3	116	34x4	SS		†1285	1285	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS		1650	†1750	1650	1950	2175	2925	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....		1250	1250	....	....	....	....	....
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS		1485	1485	....	....	....	....	....
NU	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS		....	....	1640	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS		875	925	†950	....	1325	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS		†1495	1495	1570	....	2195	....	1705
JONES	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	....		....	1675	1675	....	2550	....	....
JORDAN																			
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS		1995	†1995	1995	....	2650	3300	....
KING																			
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS		‡1585	†1700	1650	....	2300	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS		†1295	1395	1335	1785	1785	....	1735
Double-6	12-2½x5	39.7	Delco	Stmbg	Own	DD	3	...	34x4½	....		1385	....	2250	....	2650	....	2650
KLINE																			
6-38-G	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS		1495	1495	†1495	.....	....	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD		....	1345	....	....	1510	....	....
6-R	6-3½x4½	25.4	Conn	Rafid	Wsths	P	3	122	34x4	QD		....	....	1585	....	1785	....	....
LIBERTY																			
6	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS		1350	1350	....	....	1925	....	....
LOCOMOBILE																			
38 Series II	6-4½x5	42.3	Berling	Ball	Wsths	DD	4	139	37x5	QD		†5150	*5000	5000	....	....	6300	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD		†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS		....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	122	36x4½	SS		....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	122	35x4½	SS		....	....	1650	....	....	....	....

PAIGE																			
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	33x4	SS		1350	1350	....	....	1925	....	....
6-45	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS		....	....	1775	2650	....	3200	....
PAN-AMERICAN																			
	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS		....	1500	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	33x4	C		†1295	1265	1295	....	....	....	....
PATHFINDER																			
3-A, B, C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS		3250	3250	3250	....	....	....	....
PEERLESS																			
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS		†2340	....	2340	2850	2900	3600	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD		4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD		5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD		†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titsn	Delco	DP	3	120	32x4	SS		†1295	1295	....	....	....	....	....
PREMIER																			
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS		2285	....	2285	....	....	....	....
PRINCESS																			
4-36	4-3½x4½	23.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..		825	825	‡825	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD		....	795	....	....	....	....	....
REO																			
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS		....	†1385	1385	....	1950	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS		‡965	985	....	....	....	....	....
ROAMER																			
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	DP	3	127	34x4	SS		2150	1850	....	....	....	....	....
ROSS																			
	8-3½x5	33.3	....	....	W.Lard	DD	3	130	35x4½	SS		‡1850	....	1850	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC		395	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS		935	925	....	1395	....	....	....
SAYERS	6-3½x4½	25.3	Delco	....	Delco	P	3	....	32x4	....		....	1295	....	....	....	....	....
SCRIPPS-BOOTH																			
D	8-2½x3½	23.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS		†1425	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C		1250	....	....	....	....	....	....
SIMPLEX																			
5	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD		Chassis	7000	....	....	....	....	....
SINGER																			
17	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD		3800	†3800	3800	....	....	4750	....
STANDARD																			
8	8-3½x5	33.8	Splitdf	Zenith	Apleo	D	3	127	35x4½	....		†1950	....	2000	....	2500	3500	....
STANLEY																			
Steamer	2-4 x5	....	....	....	....	..	.	130	35x4½	SS		‡2300	2300	2300	....	....	....	....
STEARNS																			
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS		†1785	1785	1925	2300	2385	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS		†2575	....	2575	3200	....	3875	....
STEPHENS																			
Sallent Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	117½	32x4	....		‡1485	1485	....	....	....	....	....
STUDEBAKER																			
SF-4-40	4-3½x5	24.2	Remy	Schebler	Wagner	C	3	112	34x4	SS		‡1025	....	1050	....	....	....	1250
ED-6-50	6-3½x5	36.4	Remy	Schebler	Wagner	C	3	122	35x4½	SS		1335	‡1335	1385	1850	1850	2750	1565
STUTZ																			
S	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	130	32x4½	SS		2550	†2650	*2750	....	....	....	....
S.Bearcat	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS		2550	....	....	....	....	....	....
SUN																			
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS		†1345	1345	1345	....	....	....	....
VELIE																			
33	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS		1265	1265	†1265	....	1535	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS		....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS		†1890	1940	1940	2790	2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	Bosch	Own	L.N.	P	4	{124½ 137½	33x4½ 37x5	QD		†4600	....	4600	5650	5650	5800	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titsn	A-Lite	C	3	121	34x4½	SS		,	....	1525	2175	2325	2225	....
88-6	6-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS		†2550	....	2000	....	2700	2900	....
WILLYS																			
39-6	6-3½x5½	29.4	Conn	Titsn	A-Lite	C	3	120	33x4½	SS		†1365	....	1365	....	2045	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD		2950	2950	3000	3565	4165	4165	....
43	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD		3500	3500	3500	4500	4750	4750	....

*6-passenger. †4-passenger. ‡2-passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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New Schebler Carbureter for Fords

INDIANAPOLIS, Nov. 17.—The Wheeler & Schebler Co. has placed on the market a new carbureter equipment for Fords which is styled Model A. It sells complete for $17. The new carbureter is a plain tube type with no moving parts and incorporates the principle of the Pitot tube, an improved type of gasoline nozzle which furnishes a rich mixture for starting and a thinned out mixture for normal running. There are two adjustments, one for slow speed and one for high. The equipment includes the carbureter, steering column control, hot air drum, flexible tubing, manifold gasket and the necessary screws and bolts.

Will Auction Ogren Nov. 22

CHICAGO, Nov. 17.—The property of the Ogren Motor Car Co. will be sold at auction Nov. 22 by Samuel Winternitz & Co. The inventory value of the plant is $135,000.

Motor Car Securities Quotations

	Nov. 17, 1917 Bid	Asked
*Ajax Rubber Co.	49½	50
*J. I. Case T. M. Co. pfd.	..	80
Chalmers Motors Co., com.	2	4
Chalmers Motor Co., pfd.	..	50
*Chandler Motor Co.	60	61
Chevrolet Motor Co.	52	56
*Fisher Body Corp., com.	21	34
*Fisher Body Corp., pfd.	75	85
Fisk Rubber Co., com.	..	50
Fisk Rubber Co., 1st pfd.	100	105
Fisk Rubber Co., 2nd pfd.	75	85
Firestone Tire & Rubber Co., cm.	98	100
Firestone Tire & Rubber Co., pfd.	98	101
*General Motors Co., com.	85	87
*General Motors Co., pfd.	73	75
*B. F. Goodrich Co., com.	32	33
*B. F. Goodrich Co., pfd.	90	98½
Goodyear Tire & Rubber Co., cm	142	145
Goodyear Tire & Rubber Co., pfd.	96	99
Grant Motor Car Corp.	2	4
Hupp Motor Car Corp., com.	24	24¾
Hupp Motor Car Corp., pfd.	75	85
International Motor Co., com.	8	11
International Motor Co., 1st pfd.	30	50
International Motor Co., 2d pfd.	15	30
*Kelly-Springfield Tire Co., Cm.	37½	39
*Kelly-Springfl'd Tire Co., 1st pfd	75	83
*Lee Rubber & Tire Corp.	10½	11½
*Maxwell Motor Co., Inc., com.	22	25
*Maxwell Motor Co., Inc., 1st pfd.	50	52
*Maxwell Motor Co., Inc., 2d pfd	14	15
Miller Rubber Co., com.	..	120
Miller Rubber Co., pfd.	97	99
Packard Motor Car Co., com.	110	125
Packard Motor Car Co., pfd.	93	97
Paige-Detroit Motor Car Co.	14	17
Peerless Truck & Motor Corp.	8	11
Portage Rubber Co., com.	..	115
Regal Motor Car Co., pfd.	10	20
†Reo Motor Car Co.	16	18
*Saxon Motor Car Corp.	5	7
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	7	8
Standard Parts Co.	..	75
*Stewart-Warner Speed. Corp.	45	47
*Studebaker Corp., com.	38½	40
*Studebaker Corp., pfd.	..	90
Swinehart Tire & Rubber Co.	..	34
United Motors Corp.	15	15½
*U. S. Rubber Co., com.	48½	49½
*U. S. Rubber Co., pfd.	94	95
*White Motor Co.	35	36½
*Willys-Overland Co., com.	17½	18
*Willys-Overland Co., pfd.	69	70

*At close Nov. 17, 1917. Listed New York Stock Exchange. †Par value, $10.

Coming—THE SHOW CALENDAR—*Events*

Shows

New York	Graham Bros., First Annual Eastern Sales Convention, Knickerbocker Hotel, 2.30 p.m.	Nov. 21
Springfield, Mass.	Auditorium Building, United Shows Co.	Dec. 3-9
Akron, Ohio	National Guard Armory	Dec. 12-18
Ft. Dodge, Ia.	Ft. Dodge Auto Dealers' Assn. G. W. Tremain, Mgr.	January 1918
New York, N. Y.	Salon, Automobile Salon, Inc., Astor Ballroom. John R. Eustis, Mgr.	Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-12
Kansas City, Mo.	Third Annual Tractor Show	Jan. 11-16
Washington, D. C.	Carnival and Open House Week. Automobile Trade Assn. of Washington.	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armonry. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Commercial Museum Bldg.	Jan. 11-19
Rochester, N. Y.	Tenth Annual Exposition Park. C. A. Simmons, Mgr.	Jan. 14-19
Detroit, Mich.	Willis Ave. Overland Service Station.	Jan. 19-26
Milwaukee, Wis.	Milwaukee Automobile Trades, Inc. Auditorium. Bart J. Ruddle, Mgr.	Jan. 18-24
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
York, Pa.	York Auto Dealers' Assn., Queen St. Tabernacle. T. F. Pfeiffer, Sec.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn. Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium	Jan. 28-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Minneapolis, Minn.	Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Feb. 2-9
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., E. E. Peake, Mgr.	Feb. 9-16
St. Louis, Mo.	St. Louis Auto Mnfrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet & Dean Schooler, Mgrs.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn. Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn. Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Des Moines, Ia.	Second Annual Truck, Auditorium. Dean Schooler & C. G. Van Vliet, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., Twenty-third Regiment Armory. I. C. Kirkham, Treas.	Feb. 23-Mar. 9
	Commercial Vehicles	Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn. Auditorium.	March
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clark G. Powell, Mgr.	Feb. 23-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13

General and Racing

New York	Convention, National Assn. of Auto Accessory Jobbers, Hotel Astor.	1918 Feb. 11-16

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Giant Truck Tires Emphasize Firestone Leadership



FIRESTONE built the first successful truck tire and has led in improvements ever since. This Firestone Giant Truck Tire is the latest practical contribution to the world's vital needs of tonnage and transportation.

It gives amazing mileage and adequate protection to the truck. This great bulk of fine rubber in a single tread supersedes the two treads mounted together. It absorbs strains and shocks, regardless of irregularities in the road. There is skid prevention in the grooved tread.

It Holds the Road in Mud, Snow and Ice

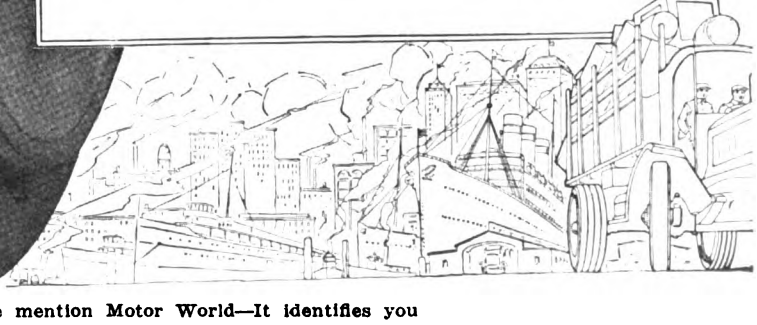
Its remarkable traction and resiliency save fuel. These and other advantages result in Most Miles per Dollar and make it—

The Dominant Truck Tire of the Day

Made in 7, 8, 10, 12 and 14 inch widths.

That motorists find extra values in Firestone Tires is proved by the fact that our sales increased 72 per cent this year up to September 1st. Our total business this year will exceed $60,000,000.

FIRESTONE TIRE AND RUBBER CO.
Akron, Ohio Branches and Dealers Everywhere



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Flawless
Non-Gran



This Mechanic Has Good Judgment!

A good mechanic with poor judgment is a poor man to work on your car.

If he backs up his good workmanship with poor material he is no good to you.

What good does it do to have him tear your car all to pieces to overhaul it and put in new bushings if he makes these new bushings out of material which is cheap and which will not stand up?

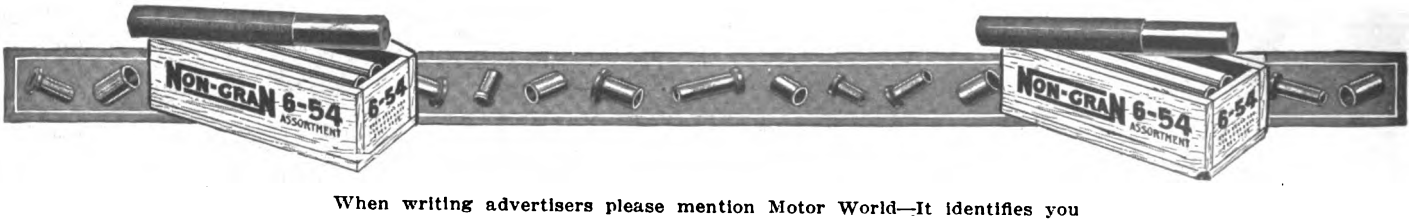
Such bushings will quickly wear and then you will have to have the job done all over again.

Take your car to a man who uses NON-GRAN for his bushings.

That man has good judgment and his services are therefore worth something to you.

American Bronze Company
Berwyn • • • Pennsylvania

HIGH SPEED
NON-GRAN
BEARING BRONZE



When writing advertisers please mention Motor World—It identifies you

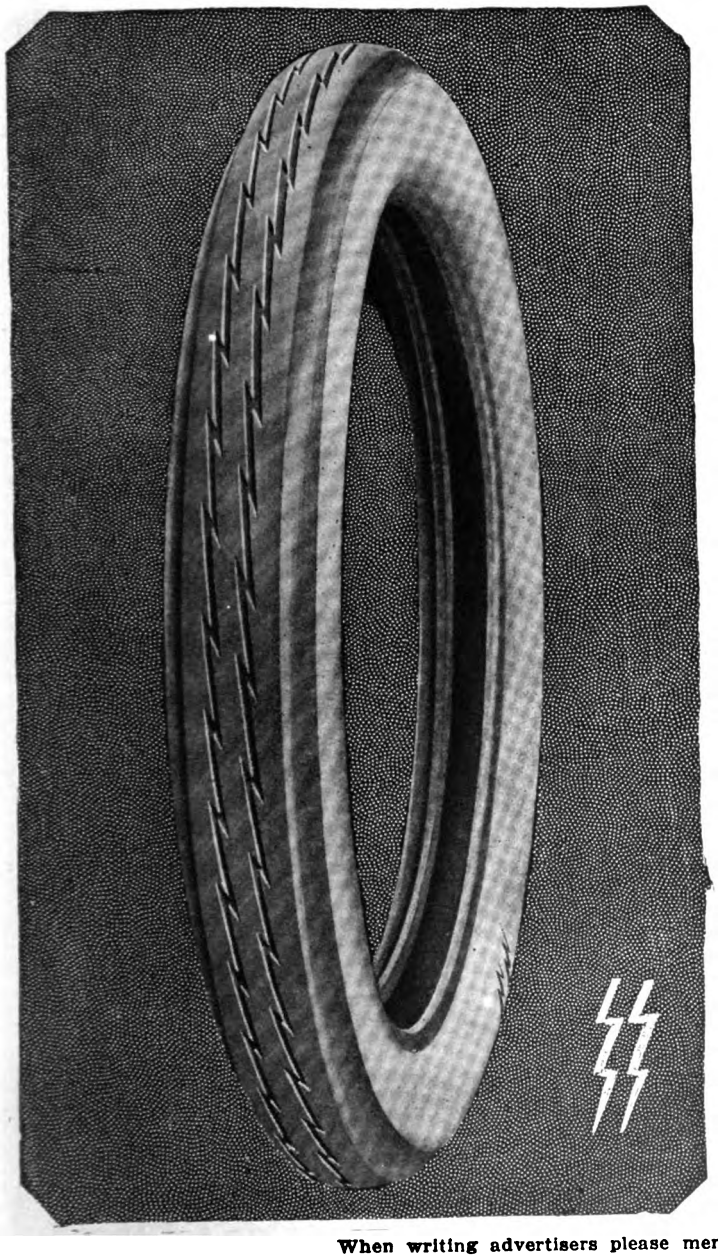
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AN AMAZING NEW TIRE IS READY TODAY

Today dealers are getting their first glimpse of a new automobile tire produced by a new company.

This tire is a surprise, for it differs from all other tires so radically in structure and appearance that comparisons can scarcely be made.

It is astonishingly strong in the carcass and amazingly resilient. Under ordinary conditions of travel it can be expected to give 40 to 80 percent more mileage than other air-inflated tires. Every casing carries a unique guarantee of satisfaction. At any time any flaw or mistake in manufacture will be corrected without dispute or delay at the expense of the makers.



Machines of ingenious pattern have been devised to build this new tire. They do what never has been done before: build a tire from single, unbroken strands of cord. Cotton cord, of such large diameter that it might well be called Rope, is fed into the machines. Without cutting the cord at a single place or hooking it to any fixtures a carcass of great strength is formed.

And note this, that the breaking point of just one strand of the cord is 235 pounds. It will in other words, support a heavy man in a heavy club chair.

Carlisle Cord is the name of this new pneumatic. It has been perfected after years of quiet, patient labor under direction of men of large experience in the tire industry.

A dealership for this tire will be a choice prize. All interested dealers should make application quickly to avoid disappointment.

CARLISLE CORD TIRE COMPANY
250 West 54th Street New York City
Factory, Andover, Mass.

CARLISLE CORD TIRES

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Westinghouse

Starting-Lighting System for Fords

Safeguard your reputation with equipment whose in-built quality makes its sales proof against come-backs and dissatisfied customers.

The name Westinghouse is assurance of that in-built dependability of the starting-lighting equipment for Ford cars.

In addition, the name Westinghouse is a sales help for every dealer.

The distributor who lives up to his duty toward the dealer is a trustee who safeguards the dealer's investment with stock of a quality that is the foundation for more business and extended good will.

It is for this reason that we have picked the one starting-lighting system for Ford Cars.

The Westinghouse is a safe, easy seller for every dealer—for you.

MP TRADE SERVICE



Full information to the interested—send a postal request before you turn the page.

Sole Distributors for the
Westinghouse Starting and Lighting System for Ford Cars

MOTOR PARTS COMPANY

816 N. BROAD ST. ////////// PHILADELPHIA

BOSTON SPRINGFIELD BUFFALO

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STEPHENS *Salient Six*

The Car of Conservation

We are in a period of conscientious spending. We are asked to minimize waste in food, clothing and other necessities.

A recent official request is to **save gasoline.** The STEPHENS SALIENT SIX is an answer. Its remarkable engine burns **all** the gasoline.

The STEPHENS SALIENT SIX is a proved energy conserver. If we get a yet poorer grade of gasoline, which we undoubtedly will, there is one engine that will burn ALL of it—THE STEPHENS SALIENT SIX.

This perfected overhead-valve engine represents the composite worth of the best in engineering so combined as to merit its title as the most advanced engineering achievement of the day.

Five-Passenger Touring, Three-Passenger Roadster, $1485; *Four-Passenger,* $1550; *Five-Passenger Sedan,* $1985; *Victoria,* $1660

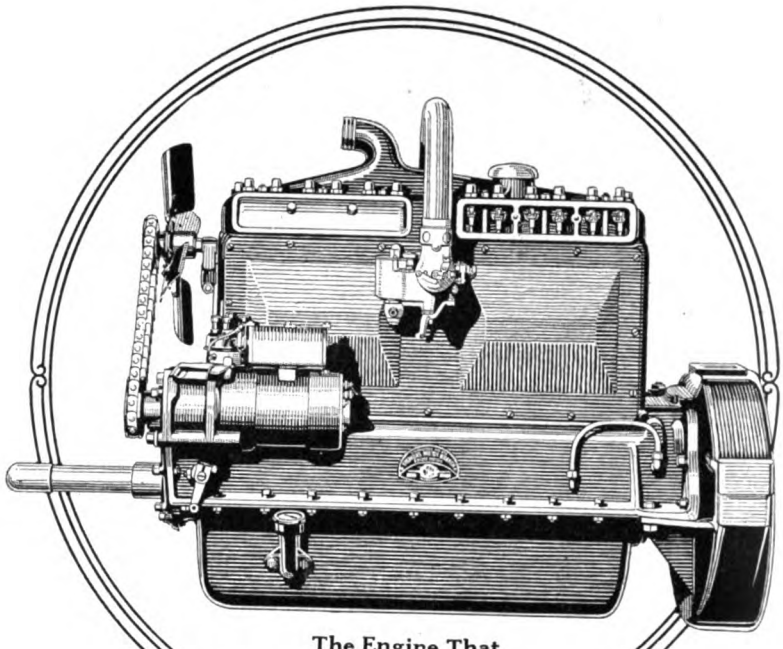
Prices f.o.b. Factory.

DEALERS: Our proposition will conserve for you. The Stephens Salient Six has an unusually large number of real selling points. Your service foundation is rock bottom.

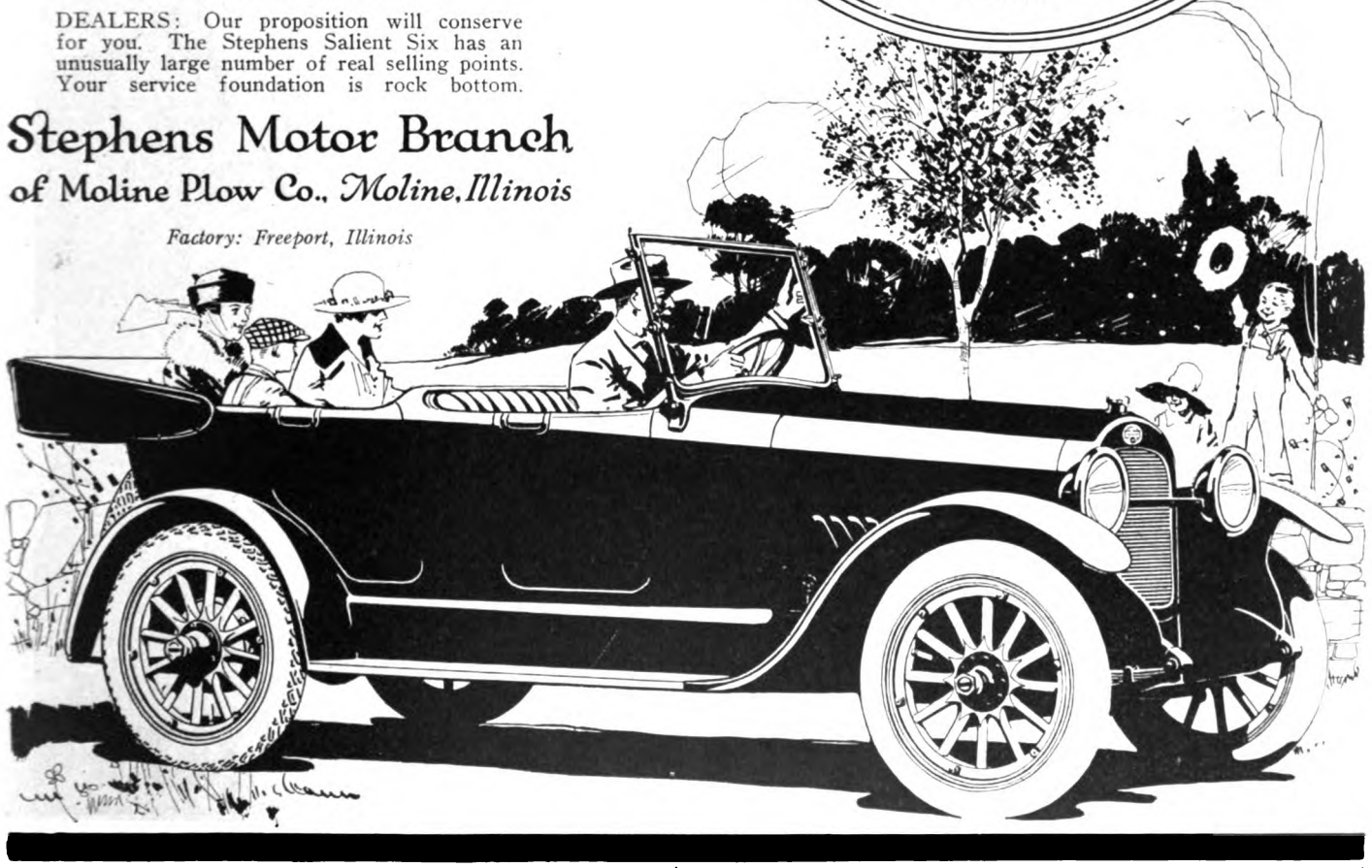
Stephens Motor Branch
of Moline Plow Co., *Moline, Illinois*

Factory: Freeport, Illinois

With the Perfected Overhead Valve Engine



The Engine That Burns ALL the Gasoline



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GETTING ACQUAINTED WITH AMAZON

THE TREAD OF THE TIRE

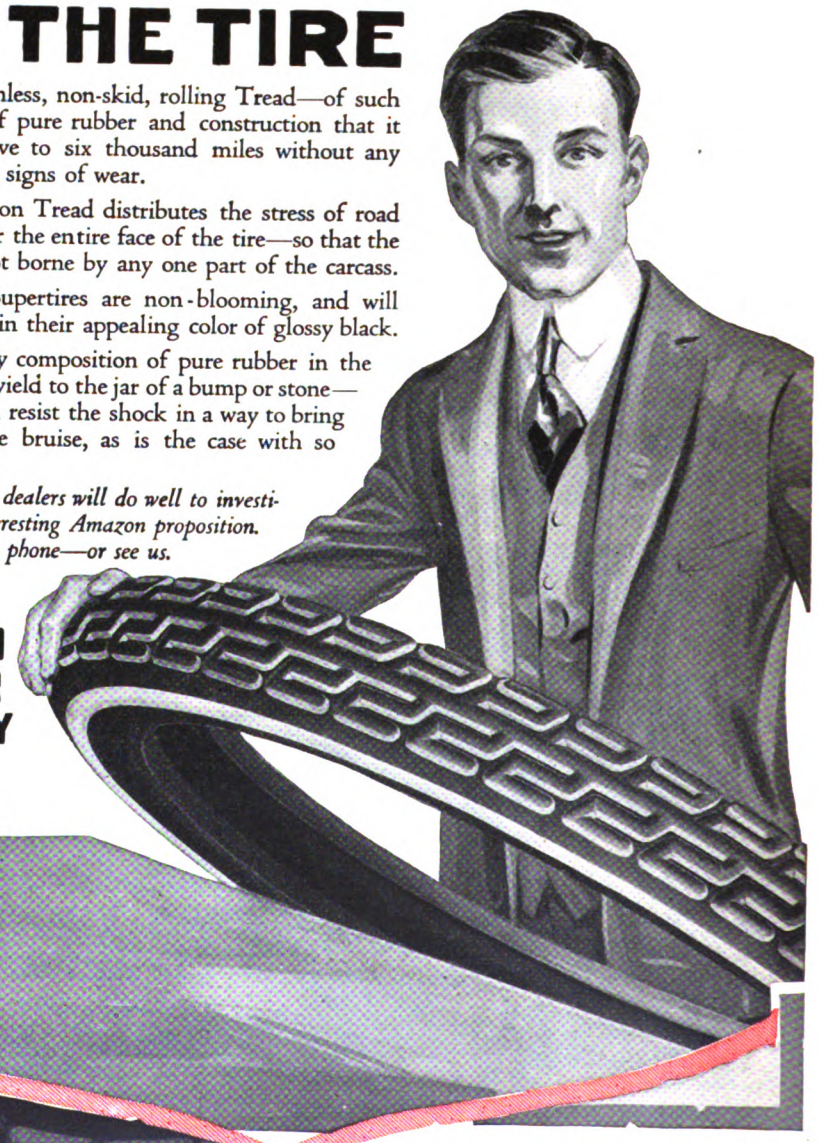
A vibrationless, non-skid, rolling Tread—of such a quality of pure rubber and construction that it will run five to six thousand miles without any appreciable signs of wear.

The Amazon Tread distributes the stress of road shocks over the entire face of the tire—so that the brunt is not borne by any one part of the carcass.

Amazon Supertires are non-blooming, and will always retain their appealing color of glossy black.

The velvety composition of pure rubber in the Tread will yield to the jar of a bump or stone—rather than resist the shock in a way to bring about stone bruise, as is the case with so many tires.

Jobbers and dealers will do well to investigate the interesting Amazon proposition. Write, wire, phone—or see us.



THE AMAZON RUBBER COMPANY

AKRON, OHIO

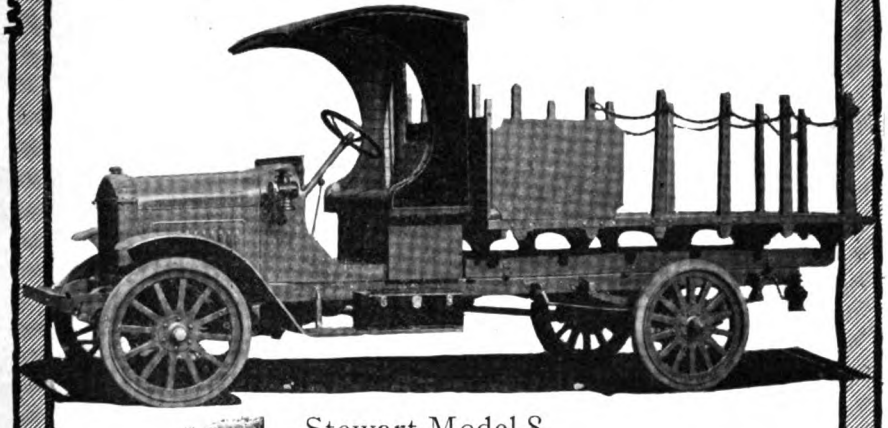
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Stewart
MOTOR TRUCKS

America's leading light-service truck

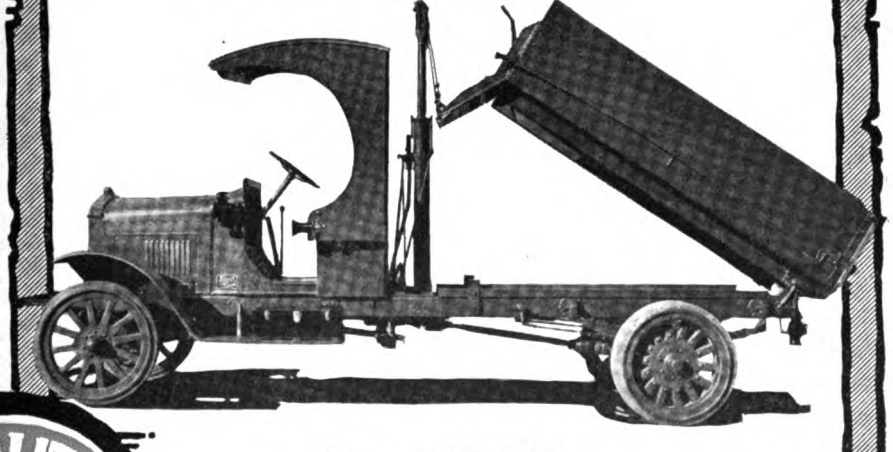
In five years no Stewart has ever worn out. That is the best evidence of Stewart quality. It is backed up by a record of low upkeep and low repair cost that is phenomenal.

Yet the Stewart's price is as remarkable as its performance. It will pay you well to investigate.





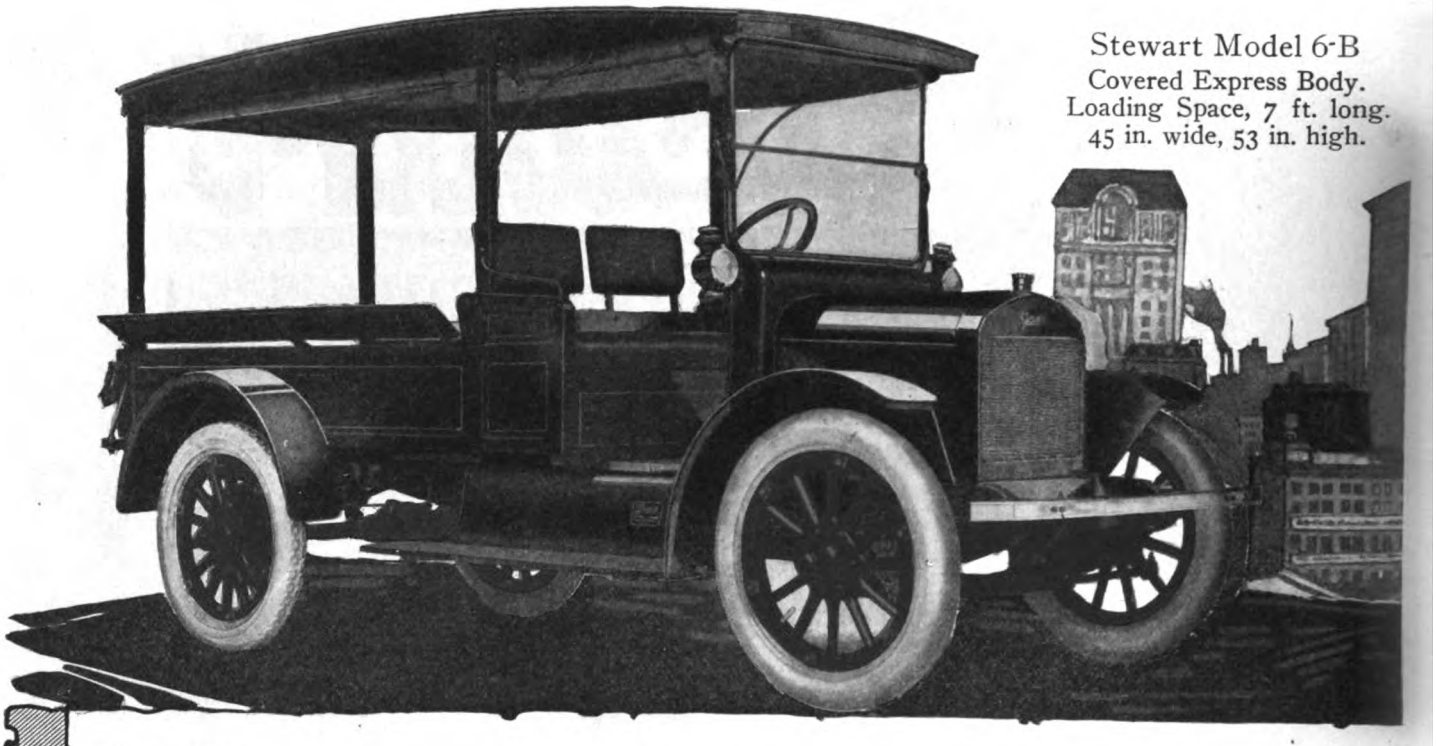
Stewart Model 8
Capacity, 1 ton.
Chassis Price, $1,295.



Stewart Model 7
Capacity, 2 tons.
Chassis Price, $2,195.

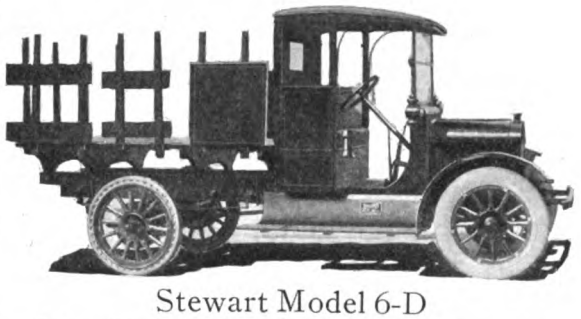
QUALITY TRUCKS
Stewart
QUANTITY PRICES

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Stewart Model 6-B
Covered Express Body.
Loading Space, 7 ft. long.
45 in. wide, 53 in. high.

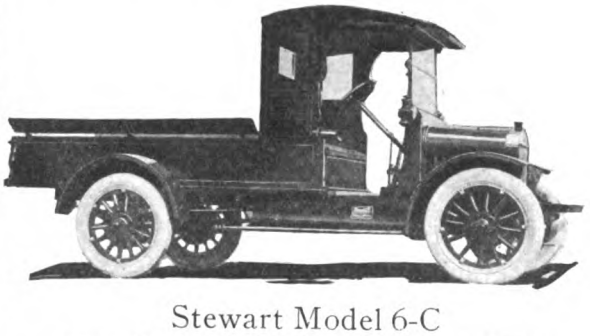
The most astounding



Stewart Model 6-D
Stake Platform Body with Driver's Cab and Storm Curtains. Loading Space 7 ft. long, 56 in. wide. Motz Commercial Cushion Tires, size 34x4½, on rear wheels, at nominal extra cost.



Stewart Model 6-A
Steel Covered Panel Body.
Loading Space, 7 ft. long,
45 in. wide, 53 inches high.



Stewart Model 6-C
Open Express Body with Driver's Cab. Loading space 9 ft. long, 45 in. wide.

QUALITY TRUCKS
Stewart
QUANTITY PRICES

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truck value in America

Proof that you save hundreds of dollars when you buy a Stewart Truck

Here are facts and figures that will make you think twice before you buy any other truck—that will make you think twice before you take the agency for any other.

The Commercial Vehicle for November 1st gives the average truck prices for 1918. Compare them with the new Stewart prices:

Capacity	Average 1918 price	Stewart 1918 price	What you save
¾ Ton	$1,227.00	$750.00	$477.00
1 "	1,611.00	1,295.00	316.00
1½ "	2,137.00	1,695.00	442.00
2 "	2,504.00	2,195.00	309.00

Read these specifications of the Stewart Model ¾ ton Chassis, price $750.

You will see that we have built into the Stewart the reason why in five years no Stewart has ever worn out. These units of recognized quality plus five years' specializing in production of quality trucks have put the Stewart in a class by itself.

Motor: Four-cylinder monobloc. Unusually economical and efficient. Bore and stroke, 3⅛ x 4½ inches. Horsepower, 25. Three-point suspension.

Motor Oiling: Self-contained, positive feed type with plunger pump.

Carburetor: Zenith automatic with dash adjustment; throttle controlled by foot accelerator.

Ignition: High Tension Magneto with fixed spark.

Cooling System: Heavy truck type radiator with thermo-syphon water circulation, 14-inch steel blade fan.

Transmission: Selective sliding gear, three speeds forward and reverse. Unit power plant type bolted direct to engine. Gears 3½% nickel steel. Gear ratios from engine to rear wheels: high, 5.87 to 1; intermediate, 11.33 to 1; low, 17.66 to 1; reverse, 23.48 to 1.

Clutch: Multiple disc dry plate, Raybestos and steel. All adjustments automatic.

Drive: Joints between transmission and rear axle, require no lubrication, no wear.

Steering Gear: Worm and gear type. Springs in connecting link to front axle for absorbing road shocks.

Front Axle: Drop Forged I-beam Section 2½" x 1½", with heavy spindles and unusually large adjustable ball bearings.

Rear Axle: Latest internal gear type, noted for strength, efficiency and quietness. Gear ratio: 6 to 1. Large roller bearings.

Brakes: Contracting on rear hubs. Brake linings, 14" in diameter, 2" in width. Separate equalizers for hand brake and foot brake.

Frame: Side rails 4" deep. Three cross-sections, gusseted.

Springs: Detroit Guaranteed Semi-elliptic, front and rear.

Wheels: Front and Rear Wheels Artillery Type. Twelve spokes in front wheels, 14 in rear.

Tires: Pneumatic 32 x 4", non-skid rear, demountable rims.

Wheel Base: 110"; Tread, 56".

Equipment: Folding Glass Front; two Oil Side Lamps; one Oil Tail Lamp; one Extra Rim; Tire Irons; Mechanical Horn; Full Set of Tools, Tire Repair Outfit, also Front Bumper.

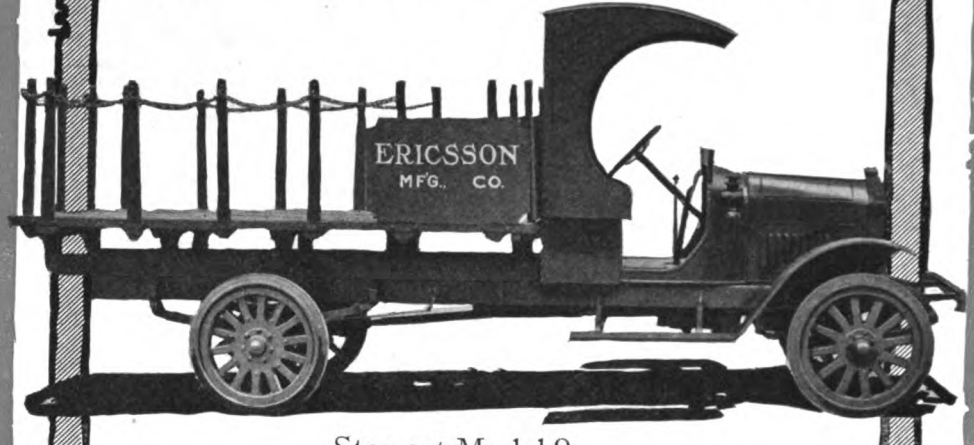
Finish: Chassis painted Stewart red, bodies Cobalt blue. Hood sheet metal work, black enamel.

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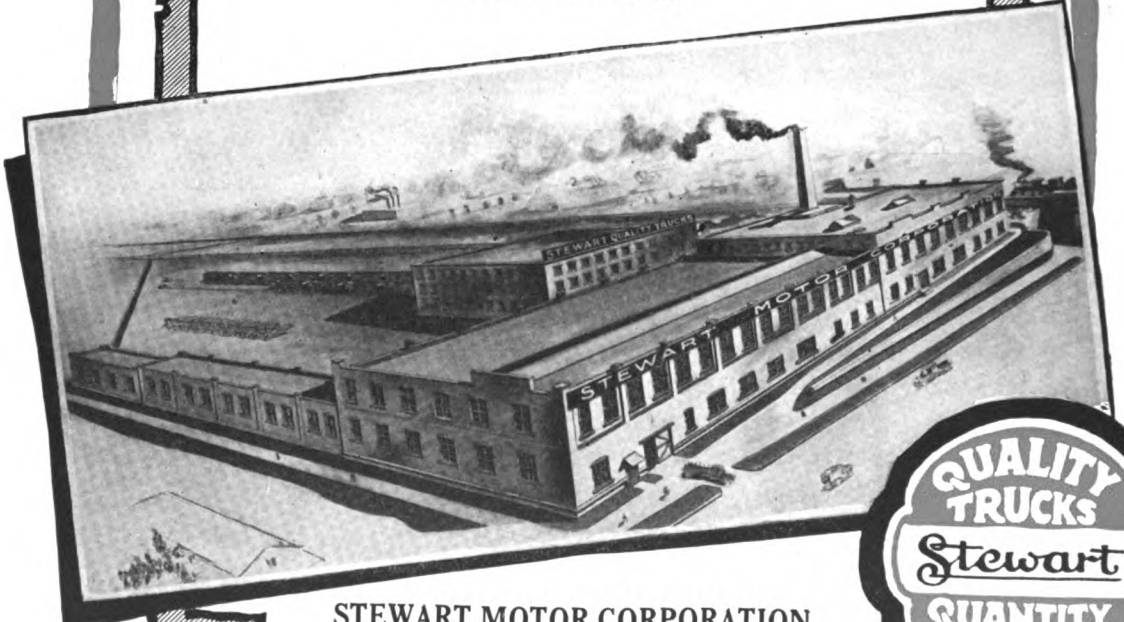
Stewart
MOTOR TRUCKS

You cannot approach Stewart Quality at Stewart Prices

Stewart success is based on honest determination to give the purchaser the greatest possible value for his money—to build quality—real quality—into every truck, and yet to hold the price down. Look over the specifications on the preceding page. Then consider the prices.



Stewart Model 9
Capacity, 1½ tons.
Chassis Price, $1,695.



STEWART MOTOR CORPORATION
BUFFALO, N. Y.

QUALITY TRUCKS Stewart QUANTITY PRICES

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ATWATER KENT

SCIENTIFIC IGNITION

Mr. Dealer—What of Tomorrow?

ARE you stabilizing your business by selling goods that have consistently evidenced their worth and value—that the consumer will buy as readily tomorrow as he does today?

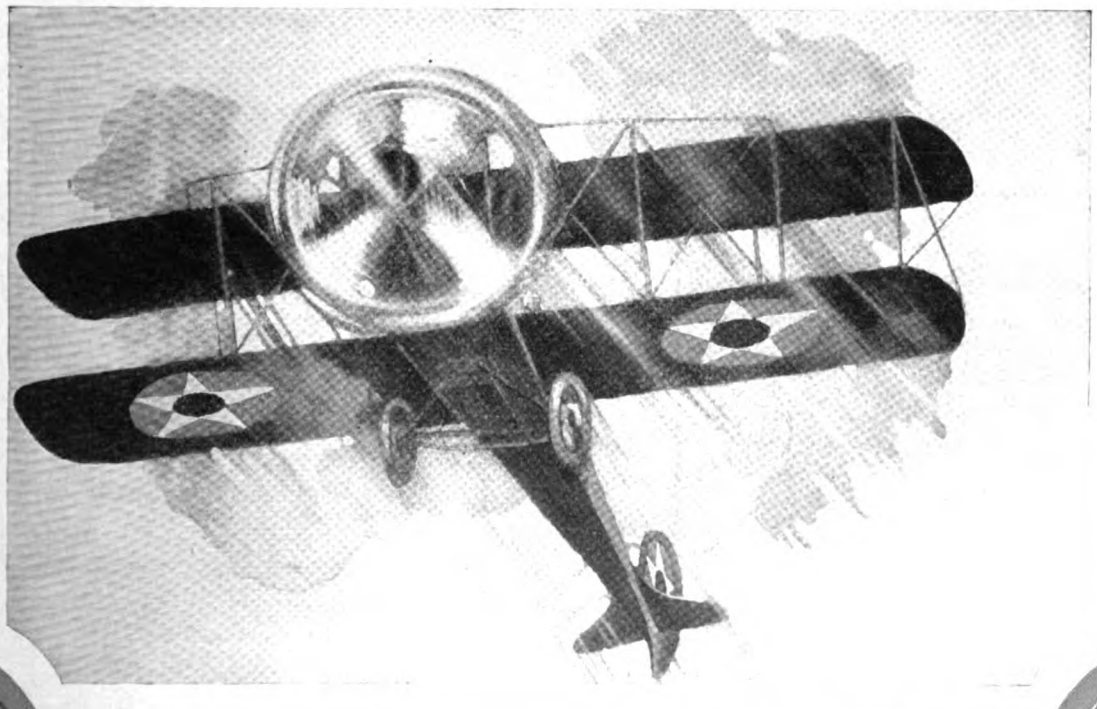
The adoption of Atwater Kent Ignition by over thirty manufacturers of automobiles, tractors and trucks is sure proof of its unfailing performance and ultimate economy.

Atwater Kent Ignition is liberally advertised and is sold on a "make good or money back" basis.

The Atwater Kent dealer is building a firm foundation for the future—he is building for tomorrow's profits today.

ATWATER KENT MFG. WORKS *Philadelphia*

WRITE FOR INFORMATION TO 4940 STENTON AVENUE, PHILADELPHIA, PA.



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—all Official World's to 6 hours *go to smash* Packard Special with Aviation-Type Motor

Details of Records

Official Records now before the A. A. A. Contest Board for official recognition:

First hour	110 miles
Second hour	219 miles
Third hour	320 miles
Fourth hour	428 miles
Fifth hour	522 miles
Sixth hour	616 miles

These are the official figures allowed by the A. A. A. on the official survey of the track. Owing, however, to the larger turning radius that must be covered at higher speeds, the actual distance covered by Mr. De Palma was 633.12 miles in the 6 hours' running time.

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Records from 10 miles before Ralph De Palma's its 300 cubic inch *equipped with*

BETHLEHEM SPARK PLUGS

10 miles in 5 minutes and 17.4 seconds (113.42 miles per hour) — 616 miles in 6 hours—these were the records made by DePalma's Packard Special equipped with a 300 cubic inch Aviation Type Motor at Sheepshead Bay on Friday, November 16th.

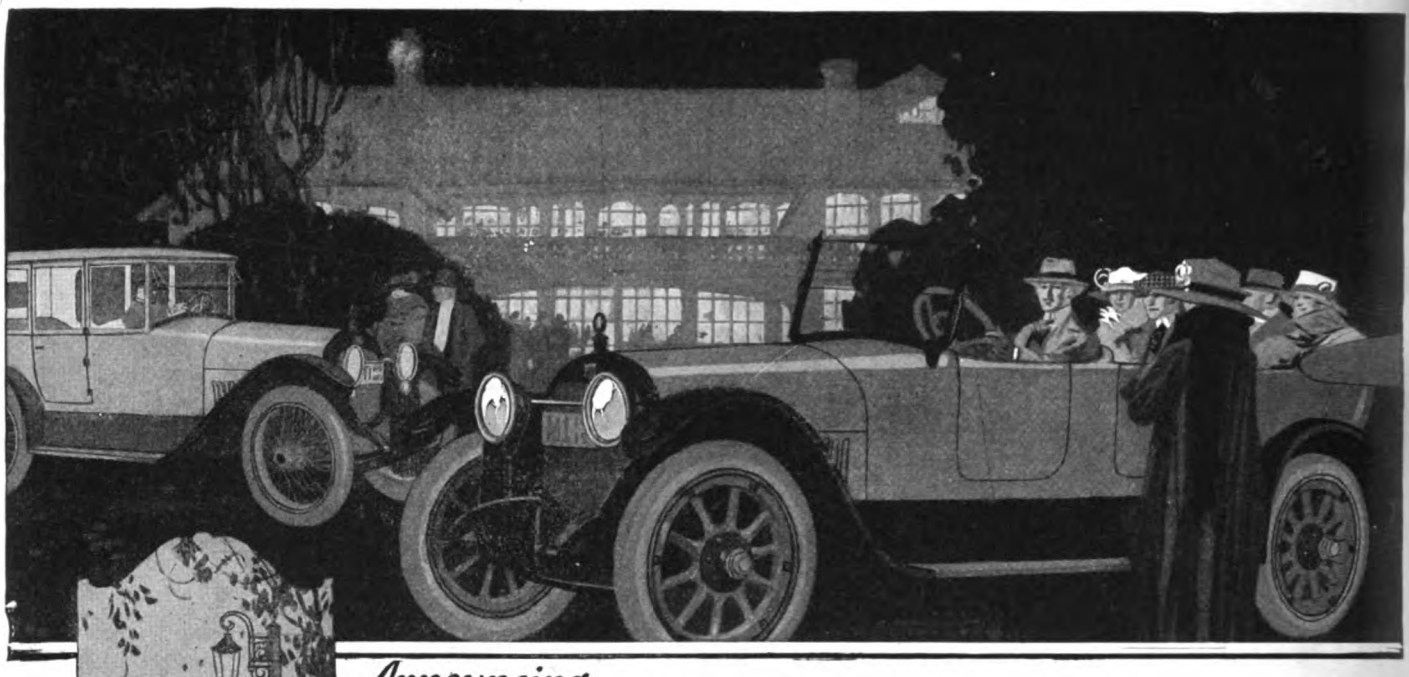
Over **SIXTY MILLION SPARKS** without a miss or skip—this was the record of the BETHLEHEM Spark Plugs that lashed De Palma's motor into its record-smashing speed.

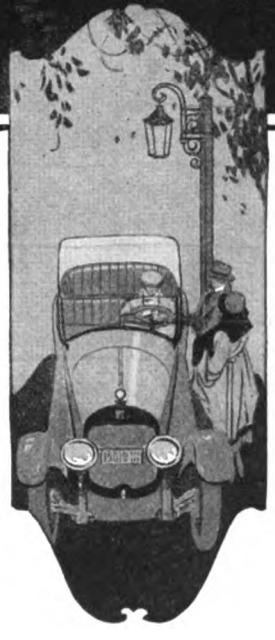
The BETHLEHEM Spark Plugs used by DePalma were the De Luxe type that he used with such unusual success at Sheepshead Bay on August 18th; at Chicago on September 3rd; and again at Sheepshead Bay on September 22nd — and that in Friday's performance enabled him to break, by 50 miles, the previous 6-hour record of 566 miles made at Brooklands, England, in 1913, with Resta, Chassagne and Guinness alternating as drivers.

This latest achievement of BETHLEHEM Spark Plugs is one more convincing proof that The Silvex Company has mastered the requirements of this most exacting of motor service—the modern, high-speed, high compression, multi-cylinder, fighting-type aviation motor.

THE SILVEX COMPANY, Bethlehem Products
E. H. SCHWAB, President **BETHLEHEM, PENN.**

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25th Successful Year
(1893-1917)

Announcing

the Mature Haynes Motor in a Beautifully Refined Setting

Twenty thousand Haynes owners have driven America's Greatest Light Six engine the astounding distance of a quarter *billion* miles since July, 1914. In those forty months of terrific usage but a few minor betterments have proved possible.

OUR quarter-century of successful experience satisfies us that the Haynes engine is mechanically *mature* — a "gem" of engineering achievement. We can only improve its "setting."

Added Exterior Beauties

The new Haynes hood is broad-chested and high. The lines are straight. The weather-tight windshield tilts rakishly. There is a double cowl.

Beige brown, deep carmine or royal green are the colors for the dashing four-passenger roadsters and the open cars for either five or seven. All-season sedans, town cars and coupes may also be had in a variety of colors.

Charming Interior Refinements

The tonneau cowl panel in the seven-passenger car is of beautiful American walnut. The auxiliary seats fold into it, and doors close over them. A carrying compartment is at the center.

Ultra-fashionable French pleated upholstery is used. Deep cushion springs are beneath the comfortably shaped seats. Roominess is a feature.

The doors open wide for easy entrance. The instrument board is compact, with all switches within easy reach of the driver.

The Chassis Perfections

Longer, broader, more resilient springs increase the comfort of riding. The spring shackle pins are automatically lubricated by an ingenious utilization of the lamp wick principle.

The six-inch frame side members hold the body rigid on uneven roads. Squeaks and rattles will not develop. Doors will not bind. Nor can a "full load" cause any sagging.

The motor is rigidly supported in the rear. This offers added security to the good Haynes engine and the gear-set. A Bendix starter-drive is used.

THE HAYNES AUTOMOBILE COMPANY *70 S. Main St., Kokomo, Ind., U. S. A.*

HAYNES

"America's First Car"

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MICHELIN TIRES

mean more prestige in your community



Prestige means everything, Mr. Dealer. It forms an important element of success.

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Talks to the Number 3



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TIRE TRADE

EVERY Michelin User is a Booster for the Michelin Dealer.

He owes the Michelin Dealer a real debt for helping him to greater tire economy.

He pays this debt by spreading the good word—often by bringing new customers right into the store.

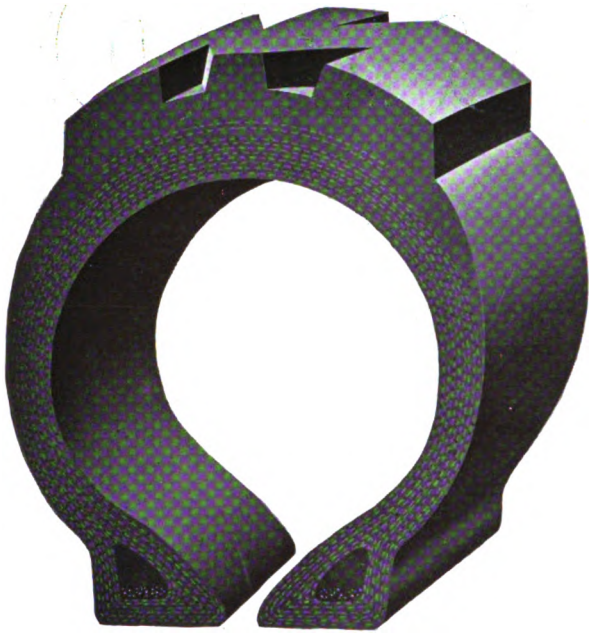
That's the way a business becomes a real money-maker, and gives the Dealer more prestige in his community.

Write today for the 1918 Michelin proposition.

Michelin Tire Company
Milltown, N. J.



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REMEMBER, Mr. Dealer, that there is no better tire than the Michelin Universal at any price.

There is more rubber and fabric in the Michelin Universal, proved by the extra thickness of the tread and by the fact that the tire weighs 12 to 15% more than other makes.

Every ounce of this rubber and fabric is the best that can be produced.

Then, too, the Michelin Universal possesses the important advantage of having a broad flat tread, which not only makes the tire unusually durable but also makes it equally serviceable as a non-skid or as a "driving" tire.

The moderate price of this superb tire gives the Michelin Dealer a real advantage.

MICHELIN



Note the curve in which the Michelin Tube naturally hangs.

MICHELIN red rubber inner tubes enjoy their world-wide reputation because of two basic features of their construction:

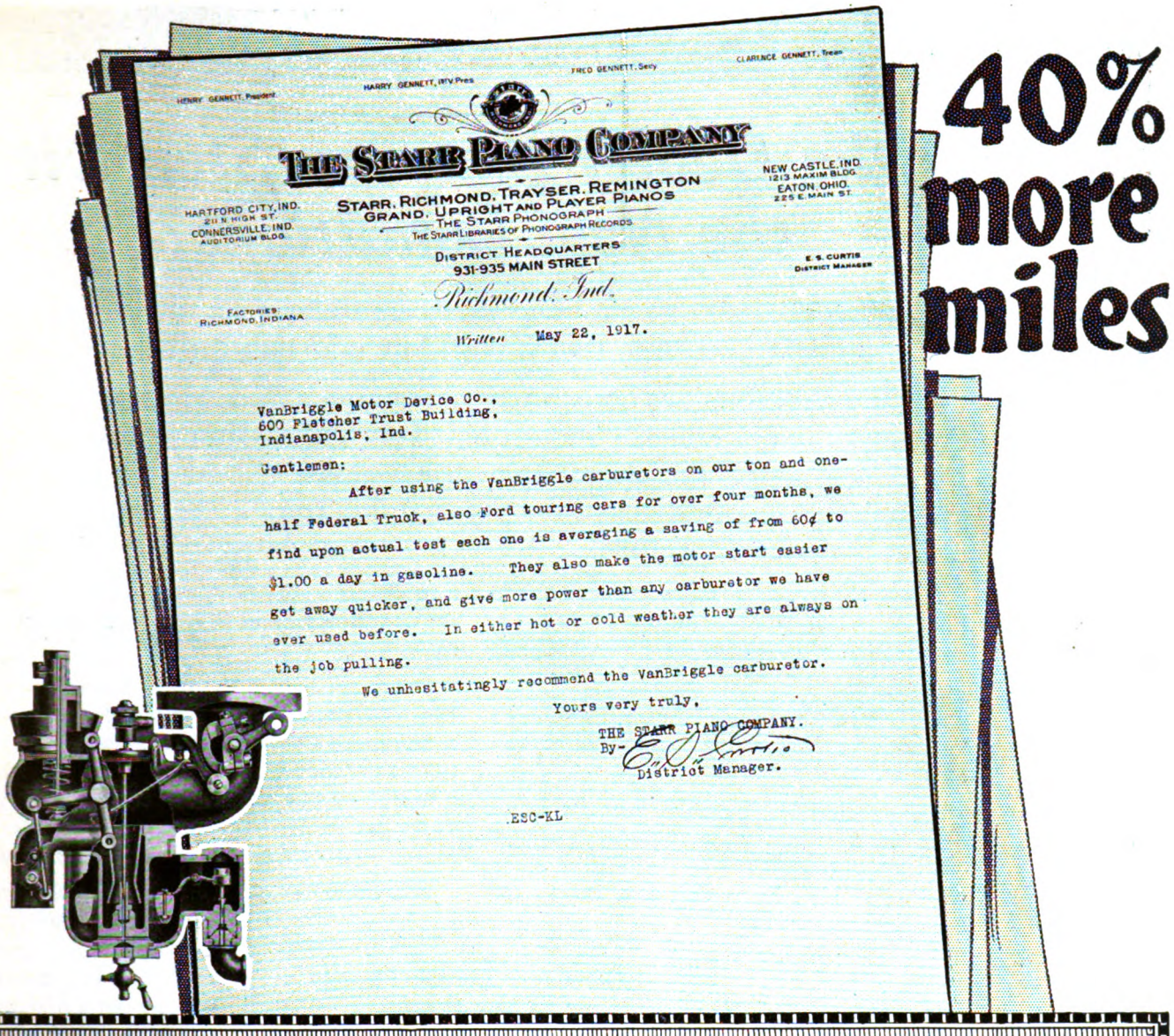
First: Michelin Inner Tubes are compounded from certain quality-giving ingredients which prevent them from becoming brittle or porous and which preserve their velvety softness indefinitely.

Second: Michelin Tubes are not simply pieces of straight tubing with their ends cemented together, but they are formed on a ring mandrel to exactly the circular shape of the inside of the casing into which they fit perfectly without wrinkling or stretching.

Michelin Tire Company

Milltown, N. J.

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for Pleasure Cars, Trucks, Tractors

VAN BRIGGLE CARBURETOR

One Principle for all Motors

New life, new power, greater mileage! The Van Briggle Carburetor has never met a motor that it has failed to benefit. Men who have used the Van Briggle *know*. Read the letter of Mr. E. S. Curtis, above Illustrated descriptive booklet free on request. *Send for it.* ¶ JOBBERS AND DEALERS: The Van Briggle is as easily handled as tires. Small stock meets any need. New opportunity for profit and service. Write for proposition.

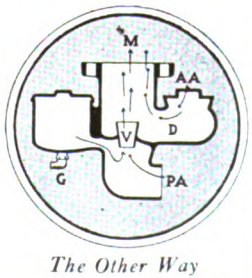
KEY TO DIAGRAMS: PRIMARY AIR (P.A.); AUXILIARY AIR (A.A.); GASOLINE (G); MANIFOLD (M.); MIXING CHAMBER (D.); VENTURI TUBE (V.); LOCATION OF MANIFOLD ON HORIZONTAL TYPE (Z.).



The Van Briggle Way

EXPLANATION OF DIAGRAMS

Because of the peculiar construction of the Van Briggle's primary air chambers, the primary air enters the venturi tube in a whirling, swirling movement, breaking even the poorest gasoline into the most minute particles. The primary mixture then enters the mixing chamber. The auxiliary air, traveling across to the manifold MUST PASS THROUGH THE PRIMARY MIXTURE. Two mixtures are thus assured in the Van Briggle Carburetor—each thorough and absolute. A thorough mixture and complete vaporization mean EVERYTHING to your motor. Compare the Van Briggle Way with The Other Way. There *is* a difference!



The Other Way

VAN BRIGGLE MOTOR DEVICE CO.
429 North Capitol Avenue, Indianapolis

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CREW LEVICK "As Old as the Industry" CREW LEVICK

CREW LEVICK Grease-in-Tube CREW LEVICK

Is the Dealer Keeping Step with the New Conditions?

EVERY wide-awake accessory merchant is aware of the unusual problems that a world at war has thrust upon him.

War conditions are constantly narrowing the margin of profits. Overhead keeps steadily mounting. The national tendency toward *thrift* is making the motorist a discriminating buyer—with little inclination to spend his money for those things that do not give him full value in return.

Under the stress of unprecedented conditions a readjustment is taking place in the trade that must vitally affect every dealer in it.

Alert dealers realize that the accessory business has been drifting. It must now be *steered!*

These dealers realize that they cannot do a successful business—a permanent business—with a few leaders—and a host of shelf-warmers. They know that dead stocks and cut-price methods cannot return a living profit.

And these shrewd merchants are *thinking hard* about all the things that they buy—and are thinking *still harder* about *how to sell them.*

* * *

This readjustment is a thing that the Crew Levick Company had foreseen long before it became plain that American business would be affected by the scope of the world war. It has analyzed the causes of this inevitable readjustment—and comes into the accessory business prepared to meet the conditions—*and to help its dealers meet them.*

Every product in the Crew Levick line is basically right and fundamentally necessary to the more efficient and economical operation of the motor car. Each article performs a useful service in a more helpful way for every car owner—and assures the dealer a satisfactory sale *beyond question of doubt.*

The Crew Levick Company has committed itself to the policy of marketing only products that can be nationally advertised to the consumer—and that move off a dealer's shelf quickly and profitably.

Before any *new* product is added to the Crew Levick family of motor car necessities it must pass the rigid demands of a research department that knows the industry and its needs *thoroughly.*

That is why when you see a product with the Crew Levick name upon it you have absolute assurance that it is *bound to sell.*

The Crew Levick Family of Motor Products

Motor Oils and Greases

that prolong the life of the car. A grade for every purpose—and each grade perfect in lubricating qualities. Oils in 1 and 5 gal. cans. Greases in 5, 10, 25 lb. cans.

Grease-in-Tubes

"The tube way is the best way"

You buy safety, cleanliness, economy in every kit. Pure grease for the right purpose. $1.00 for 3 generous tubes.

Tire Seal

"Lets tires make good"

Eliminates forever the possibility of punctures. Inner tubes will last longer with Tire Seal, a thoroughly practical product. $1.50—2.00—2 50 per can.

Fractors

"All the light, but within the law"

Glass cups that fit under the lamp bulb and scientifically solve the headlight problem. Shoot a brilliant light far ahead. Do not blind. One size for all lamps. $2.75 a pair.

Mistokleen

"The smartest cars are Mistokleened"

Its use keeps you proud of your car. Works easily, quickly, thoroughly. Filled sprayer $1.25.

Mistokloths

"A clean Kloth always handy"

A new idea for your convenience. As handy around the car as a handkerchief in your pocket. In neat boxes, 25c and 50c.

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CREW LEVICK Mistokloths CREW LEVICK

CREW LEVICK Motor oils and greases CREW LEVICK

YEARS ago when grandfather went "buggy riding" he took along a hot brick to keep his feet warm.

When the use of motor cars in the winter months became general, it was the most natural thing in the world to *adapt* grandfather's idea, and put up with what degree of comfort could be had from heated bricks dressed up in metal cases, metal foot rests or other such devices.

Now, in all things the *one* correct idea sooner or later *must* be developed. And today the Ford owner can get a heater that *really heats the car.* He can get more cold weather comfort in his Ford Touring Car than can be had in any unheated closed car. *He can get the* Victor *fresh-air* Heater—scientifically constructed *exclusively* for the Ford.

The Victor *fresh-air* Heater is simply the furnace heating idea applied to the Ford. At any time while riding you can get in half a minute all the *fresh, warm air* you wish by turning a knob—just as the heat is turned on at home.

The Victor Heater takes in fresh, cold air from outside the car and passes it over a metal drum heated by hot gases from the engine exhaust. The warmed air is then circulated up into the car through a register in the floor.

Note the simplicity of the Victor Heater. It is set on the exhaust pipe which connects it directly to the motor. The exhaust is not raised or deflected; it is not forced through pipes or flexible tubing.

The heating of the air is all done *underneath* the car. There is no danger of scorching shoes or clothing.

It costs nothing to operate the Victor *fresh-air* Heater; no parts ever need replacing. Once on, it is there to *stay*, and to give you, and those who ride with you, the maximum of confort and pleasure in cold weather riding.

Five dollars buys a Victor *fresh-air* Heater. You can install it yourself in 20 minutes. We furnish new end boards which make sawing and patching of the floor unnecessary.

Your dealer will show you a Victor *fresh-air* Heater. Ask him—today.



TO DEALERS!

Every Ford owner *wants* to get full use from his car these cold months. By helping him keep his car running you help yourself to a bigger business—*all winter.*

Show Ford owners the Victor—the *only* heater scientifically constructed to heat fresh air direct—*not metal.* The Ford owner cannot get as much comfort *at any price* as he can get in the Victor at $5.

The heater season is just commencing. Get *your* share of the heater profits. Ask you jobber—or write us.

CREW LEVICK

VICTOR REG. U.S. PAT. OFF. fresh air HEATER for FORD Cars $5

CREW LEVICK CO. PHILADELPHIA, PA., U. S. A.

Oldest and one of the Largest Producers and Refiners of Oils, and Manufacturers of Petroleum Products

Refiners:
Pennsylvania Paraffine Works, Bessemer Refining Co., Glade Oil Works, Seaboard Oil Works, Pembrick Oil Co., Pa., Lawrence Oil Co., Pa.

Producing Companies:
Muir Oil Co., Pa., Combination Oil Co., Pa., Warren Co., Illinois, Oklahoma

Branches: New York, Chicago, San Francisco, Baltimore, Boston

Foreign Offices: London, England

CREW LEVICK

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How Steady—
Rather than how many!

The number of cars you can sell during a period of extreme prosperity is not what counts.

It is the steady day-in and day-out business that builds your future—business that keeps up, and increases, through lean years as well as fat ones—business that makes you known as a motor car *merchant* rather than just a *dealer*.

There are a few high class cars on which you can build such a business—on which you can count for permanence.

Prominent among them is the Cole Eight.



Present Prices

Seven Passenger Cole Eight Touring Car...$1995
Four Passenger Cole Eight Roadster.....$1995
Four Passenger Cole Eight Tourcoupé.....$2495
Cole Eight Four-Door Toursedan.....$2695

Prices f.o.b. factory

Subject to change without notice

Cole Motor Car Company
Indianapolis, U. S. A.

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Columbia Axle

Higher Standards

The establishment and maintenance of higher standards

—of engineering

—of materials

—of workmanship!

The equalizing of the higher cost entailed by such higher standards

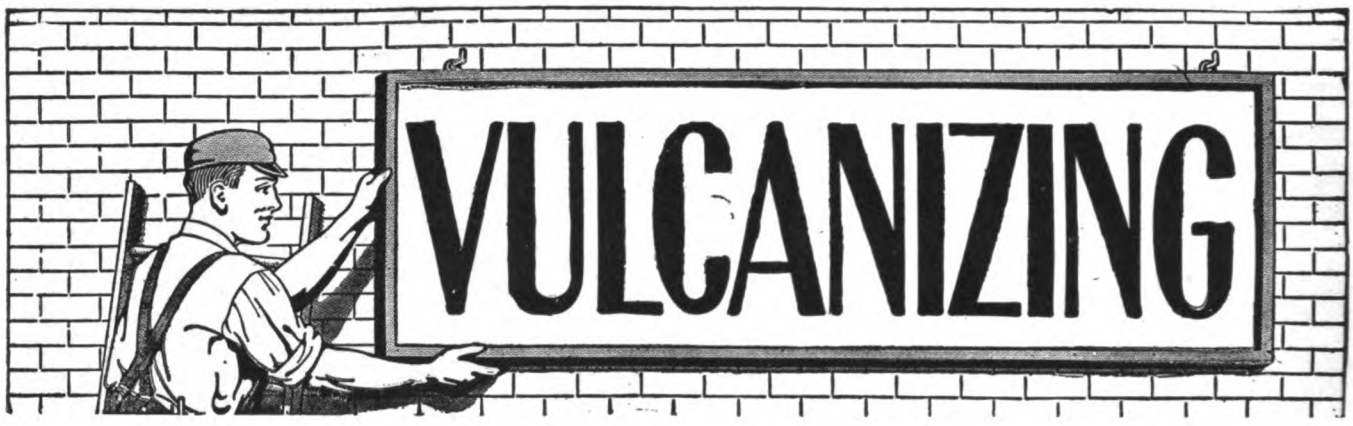
—by scientific low cost production methods!

This accomplishment offers the producer of motor cars better axles than are obtainable elsewhere without excess cost for the excess value.

We are ready to prove the accomplishment if you are ready to avail yourself of the opportunity.

The Columbia Axle Company
Cleveland, Ohio.

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How to Make Bigger Money

Every one of your customers has tire repairing to be done right along. It is a simple matter for you to get this business. Half your problem is already solved. You have the customers and a place of business. Your overhead is fixed. You have workmen that can repair tires as well as they can do any other kind of repairing.

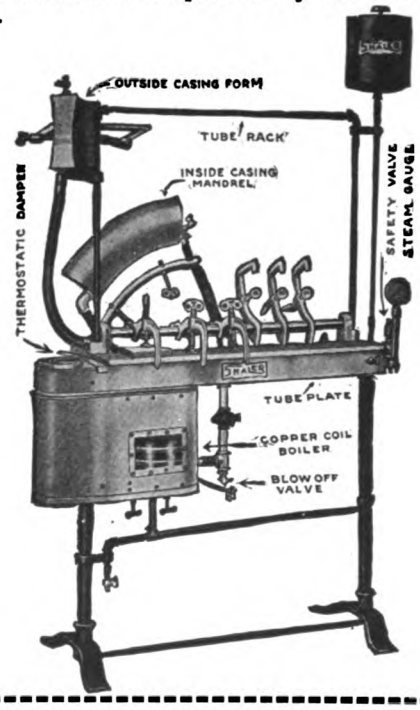
All you need now to get the tire repair profits is a vulcanizer, an economical, simple, inexpensive outfit that will enable your workmen to do every practicable kind of tire work perfectly and at a profit to you. Shaler Vulcanizers fill these requirements perfectly. Casing repairs are made with half the cost of time and material required by old methods. The Wrapped Tread Method is so simple that anyone can understand it. The initial cost of the vulcanizer and its cost of operation are only a fraction of the cost of other equipment that can neither do more work nor make as good repairs.

Resolve now to get the profits on your customers' tire repairs. Send the coupon today for our new 1917 catalog, the most complete vulcanizer catalog ever issued.

SHALER

Vulcanizing Plant $65

Steam heated. Price subject to trade discount



Repairs 200 tubes and a dozen casings daily. Temperature controlled automatically. Heats in 25 minutes—needs no regulating. Casings repaired by approved Wrapped Tread Method—no airbags.

No other guaranteed steam vulcanizer at near the same price has so great a capacity, heats so quickly, or operates so simply.

Widely used by the United States and foreign governments. Standard equipment in the majority of good repair shops. The only shop vulcanizer sold by 97% of the leading jobbers—year after year.

Ask Your Jobber's Salesman

The Shaler Line of Vulcanizers

(or "Profits for Accessory Dealers")

The Shaler Line includes the most popular motorists' vulcanizers on the market—models selling from $1.50 to $12.50—every one in demand and every one bearing a generous margin of profit.

Our 1917 advertising campaign is going to bring them more forcibly than ever to your customers' attention.

Ask your jobber's salesman about the famous "Vul-Kit" and the new "5-Minute." He will tell you what other dealers are doing with them.

Catalog Free Mail Coupon!

Every day you delay is a day of vulcanizing business lost. Get our new 1917 catalog. Mail the coupon at once—NOW!

C. A. SHALER CO.
445 Fourth St., Waupun, Wis.

Opportunity Coupon

C. A. SHALER CO.,
445 Fourth St., Waupun, Wis.

Send new catalog of Vulcanizers for **Motorists** and Repair Shops.

Name .....

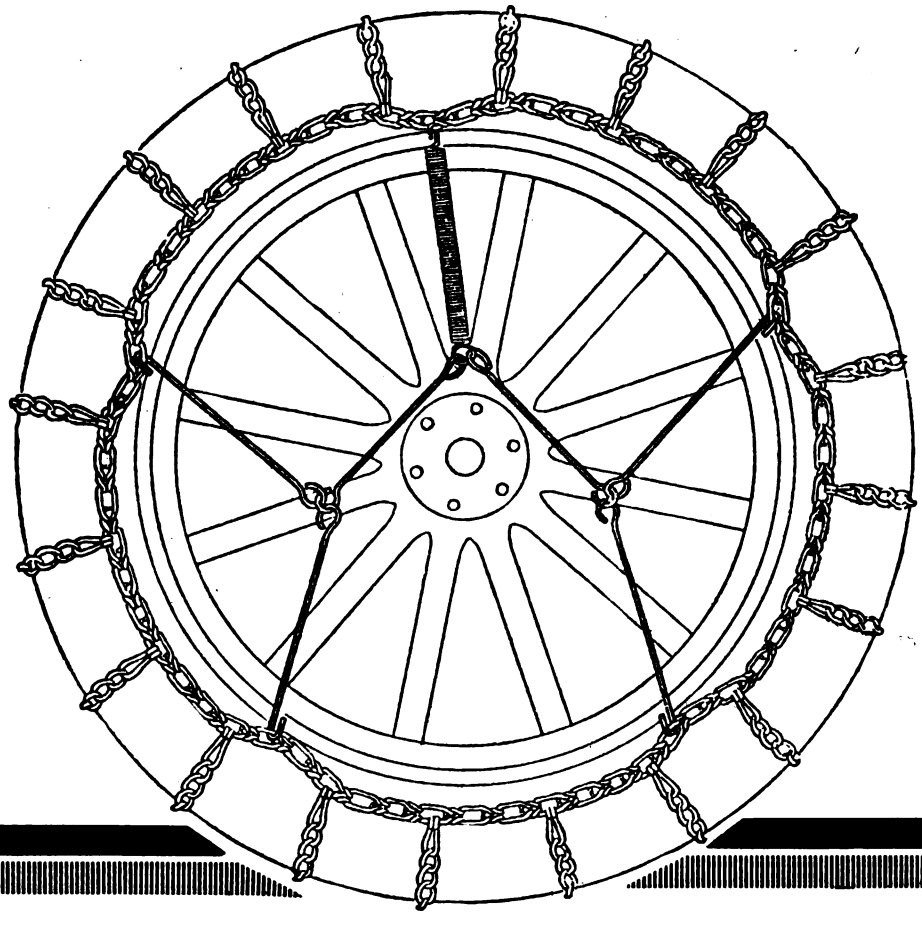
Address .....

Do you sell accessories? .....

Jobber's Name .....

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Dealers—
You can sell this Chain Tightener to every Autoist in Town



They all want it because it's thoroughly efficient, easily carried and extremely low in price.

Merchant's Anti-Skid Chain Tightener is a simple device which is quickly and easily put in place and keeps the chain from running too loose. It is light, neat, compact and durable.

MERCHANT'S Anti-Skid Chain TIGHTENER

Read what the Franklin Chief Engineer says:

H.H. FRANKLIN MANUFACTURING COMPANY

SYRACUSE, N.Y. U.S.A.

Franklin MOTOR CARS

August 8, 1917

Mr M. H. Merchant
236 Emma St.
Syracuse, N. Y.

Dear Sir,

Late last winter and during the spring season we used several sets of your chain tighteners on our experimental cars.

These tighteners worked very satisfactorily and at a very much less initial cost than any others we know of.

Very truly yours

H. H. FRANKLIN MANUFACTURING CO.

Chief Engineer

RM/C

catches the chain at five points, giving an even tension all around. It keeps the chain from pounding on the fender and obviates the danger of unhooking. At the same time it allows the chain to creep around the wheel, making it absolutely safe to use on any tire. The chain creeps without slipping, for under heavy draw it grips the tire.

Merchant's Chain Tightener sells for $1.00 a pair, which allows the dealer a mighty liberal profit. This is a real live proposition.

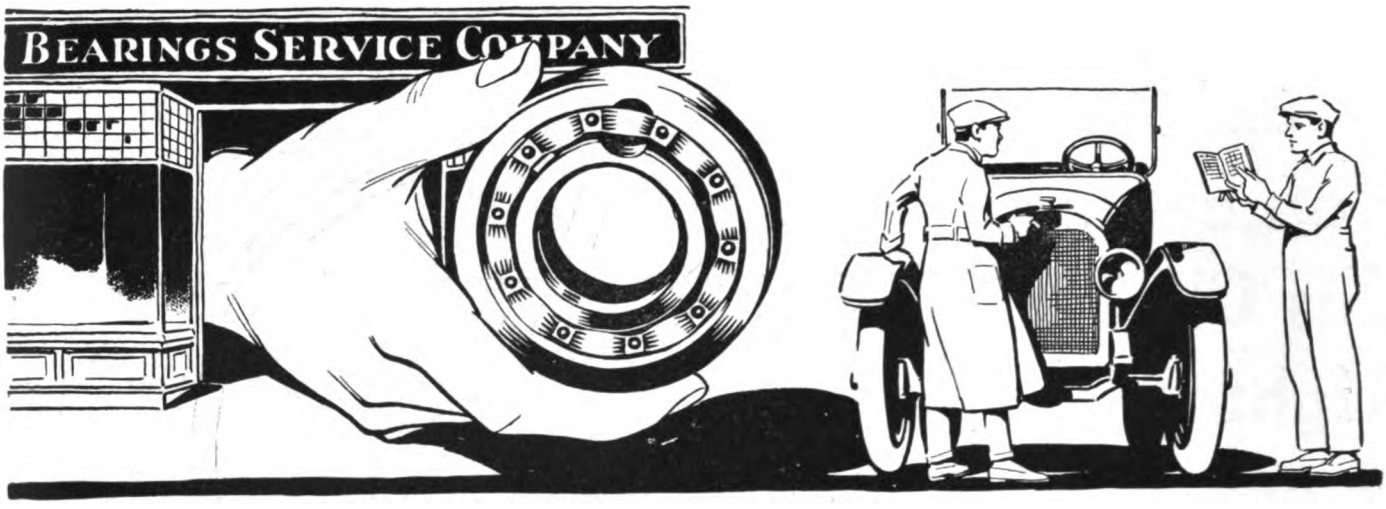
Dealers: If your jobber can't supply you—write us direct.

M. H. MERCHANT

236 Emma St., Syracuse, N. Y.

New York Office:
614 Vanderbilt Concourse Bldg.

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"Bearings Service" Means More Than Merely Selling Bearings

"Bearings Service" is a highly technical service—a service that depends upon an intimate knowledge of bearings for motor vehicles.

We maintain an elaborate data system which gives us this knowledge—exact information about the sizes and types of bearings for every location in any motor vehicle ever manufactured. We can supply the proper bearing to fit any location—without so much as a moment's delay.

Our service is not to be confused with the repairing or regrinding of bearings. The bearings we sell are not "second-hand," but a strictly new product, sold under a factory guarantee.

This specialized service for anti-friction bearings—Timken, Hyatt and New Departure—is within easy reach of automobile dealers, garage men and motorists in every part of the country.

Branches in all Principal Cities

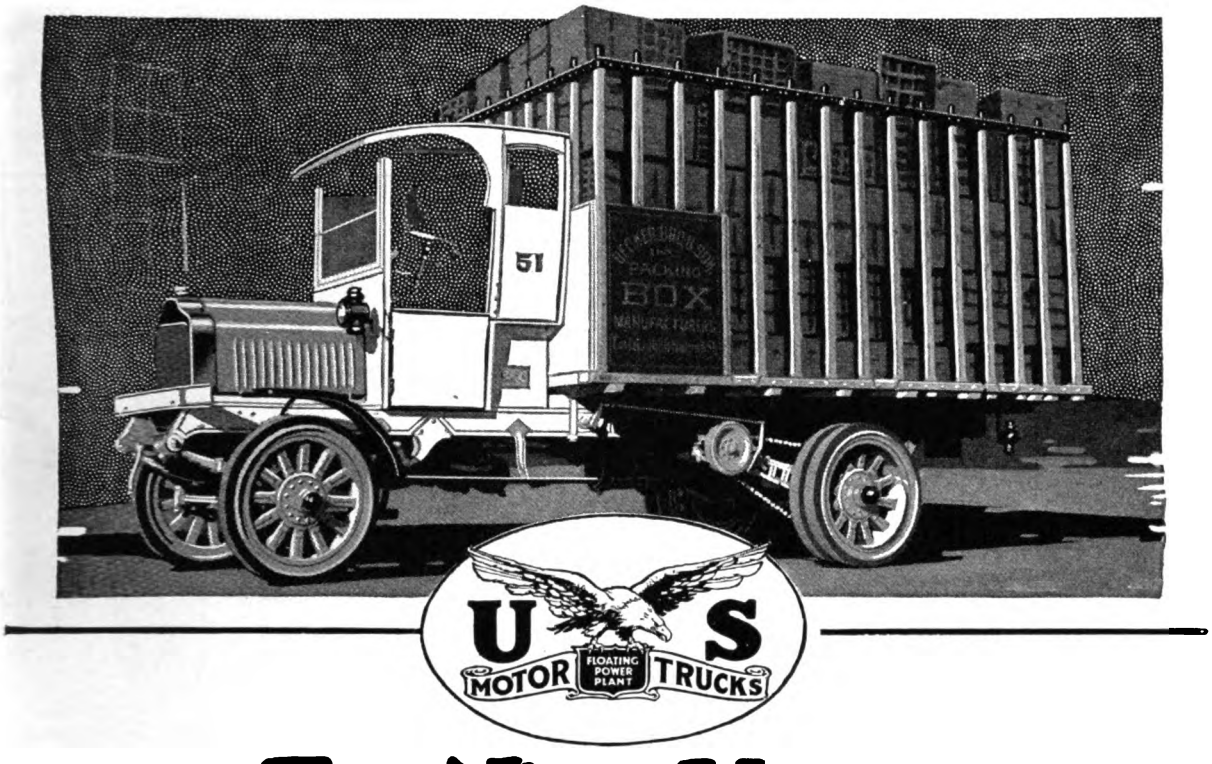
New York	San Francisco	Kansas City	Indianapolis	Omaha
Detroit	Los Angeles	Dallas	Rochester	Pittsburg
Chicago	Atlanta	Cleveland	Philadelphia	Portland, Ore.
Boston	Seattle	Denver	St. Louis	Toronto, Can.
	Minneapolis		New Orleans	

BEARINGS SERVICE COMPANY

BEARINGS SERVICE COMPANY

General Offices—Detroit, Michigan

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For Nine Years —
A Better Truck Every Year!

Nine years ago U. S. trucks were good trucks—among the best that you could buy.

Today U. S. trucks are vastly better—and still among the best that you can buy.

Every year U. S. trucks have improved—every year gained new friends, added enthusiastic owners.

The company that makes U. S. trucks has grown to a million dollar corporation, operating great, modern, completely equipped factories.

It is financially and commercially unassailable—the kind of an organization you feel safe in depending upon.

Let us explain the Floating Power Plant and submit the evidence regarding the service U.S. trucks are giving their present owners.

Worm-Drive, 2½, 3½ and 5 ton
Chain-Drive, 2½ and 3½ ton

The United States Motor Truck Company
Cincinnati

New York Philadelphia Baltimore Pittsburg Cleveland
Denver Chicago Atlanta St. Louis Boston Minneapolis

Dealers in all commercial centers

U.S. Trucks

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Springs Axles Bearings

The Successful Motor Car Heater

IN THEIR third successful year, Perfection Heaters are now standard equipment on more motor cars than all other heaters combined.

These successful heaters stimulate winter sales.

Manufacturers who fail to appreciate this expose their dealers to unnecessarily severe competition.

Dealers may, however, readily supply the deficiency. Perfection Heaters are easily installed in virtually any car.

Perfection Heaters are inexpensive and cost nothing to operate. They utilize the waste heat of the motor and radiate it into the car.

Write for complete catalogue of the several types of Perfection Motor Car Heaters.



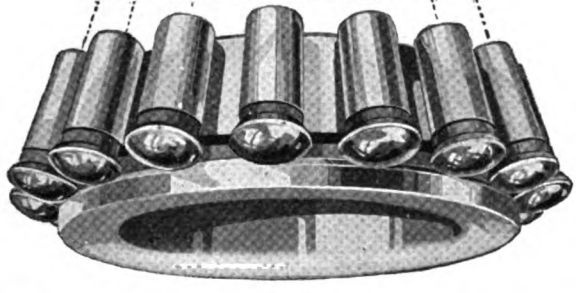
THE STANDARD PARTS CO. CLEVELAND, O.
Rims, Steel Tubing, Motor Car Heaters

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BOCK

Everything Rolls



More Efficient—Stronger—More Durable

HERE are bearings that *really* roll.

Every contact is a *rolling* contact—even the *end* contact.

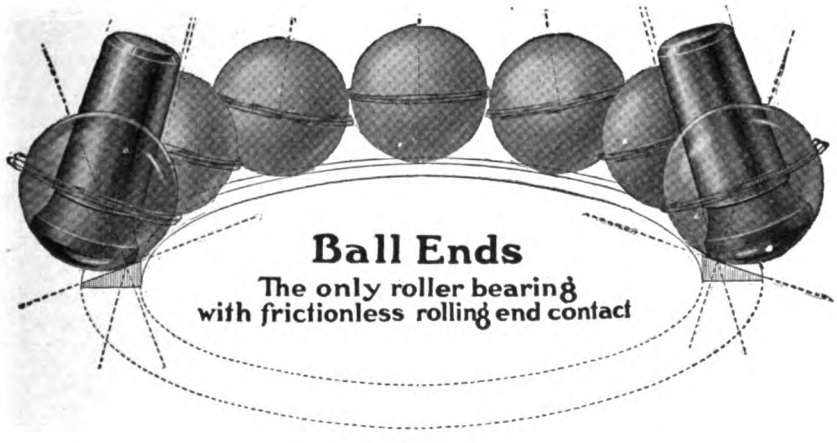
In other roller bearings the ends slide.

That means friction. Also a weaker bearing.

The load-carrying capacity of the Bock is far greater than any other bearing made.

And, of course, being practically frictionless everywhere, they use less power than any other bearing.

For the same reason, they are more durable than any other bearing.



THE STANDARD PARTS CO. CLEVELAND, O.

Rims, Steel Tubing, Motor Car Heaters

Digitized by Google

Buffalo Specialty Co.,
Buffalo, N. Y.

We would like to receive one of your new Auto Liquid Veneer Window Trims free, which we agree to use.

Name .....

Address .....

City .....

M. W.

You Dealers Who Sell

AUTO LIQUID VENEER

will be interested to know that we have a brand new *window trim*, NEARLY AS EFFECTIVE AS A DEMONSTRATION, that we will send you, FREE. It shows how Auto Liquid Veneer is applied and what a beautiful result it gives. It is a strong selling argument and will help to move the goods.

Just fill in and return the coupon printed in the corner above, and we will send one of these beautiful trims to you, free.

BUFFALO SPECIALTY COMPANY
Buffalo, N. Y., U. S. A. Bridgeburg, Ont., Canada



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Vesta Searchlight

$5.00 to $7.00

-a Successful Drive to a *Bigger* Searchlight Business

A Windshield Searchlight, more than any other automobile light, needs to be well-built. The constant moving of the lamp, its exposed position, and its single-bearing, flexible support subject it to peculiar wear and strain.

Vesta Searchlights are made to stand up.

The handle knob is of German Silver, non-tarnishing. The swivel joint has machine-tapered bearing surfaces, brass to iron, and is oilless. The switch is a genuine Cutler-Hammer. Bracket attachments are of malleable iron and made in various styles so that every car can be fitted. The doors are hinged on both sides. They cannot fall off as with the cheap screw-and-bayonet catch construction. Body is heavy gauge steel. Reflector is heavily silver-plated. Lamp is 21 C. P. Nitrogen Mazda, throwing 800 feet beam.

Altogether a quality searchlight throughout. The light that you can recommend to the motorist and feel absolutely certain that it will give satisfaction.

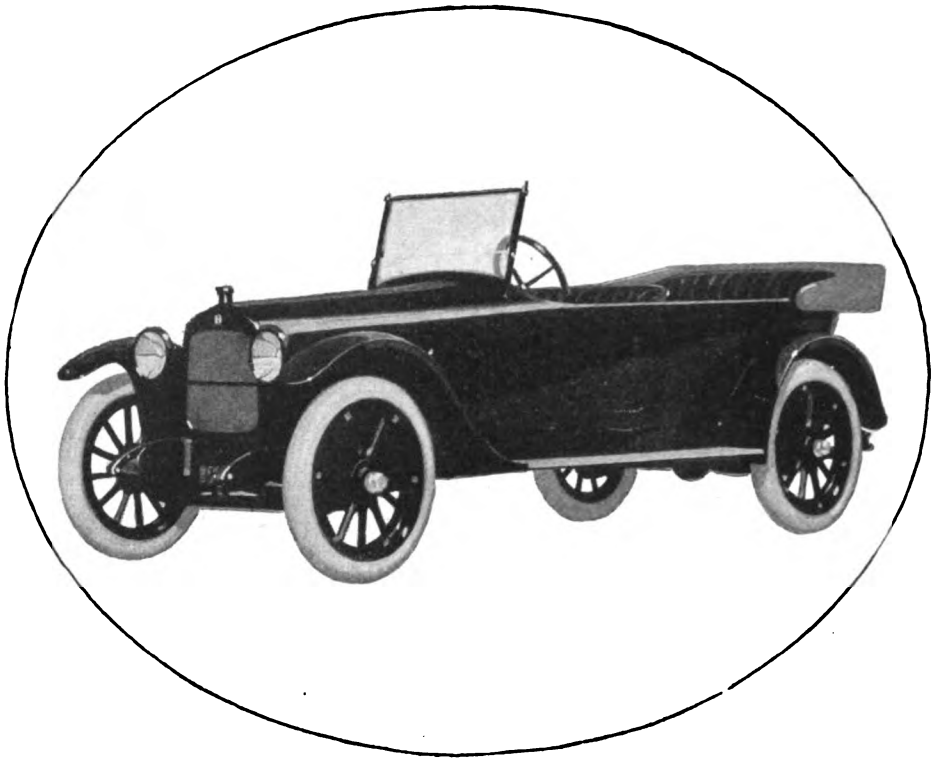
Let us send you prices and complete information. Write today.

VESTA ACCUMULATOR COMPANY, 2103 Indiana Ave., Chicago, Ill.



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Presenting the New Series 'R'



The Comfort Car

The new Hupmobile now has been distributed to more than 500 cities. It is probably being shown this week in your home town. We confidently predict that it will make a more profound impression than any Hupmobile which has preceded it.

Hupmobile history has been one long, unbroken succession of good and successful cars.

Out of that excellence we have created a greater excellence.

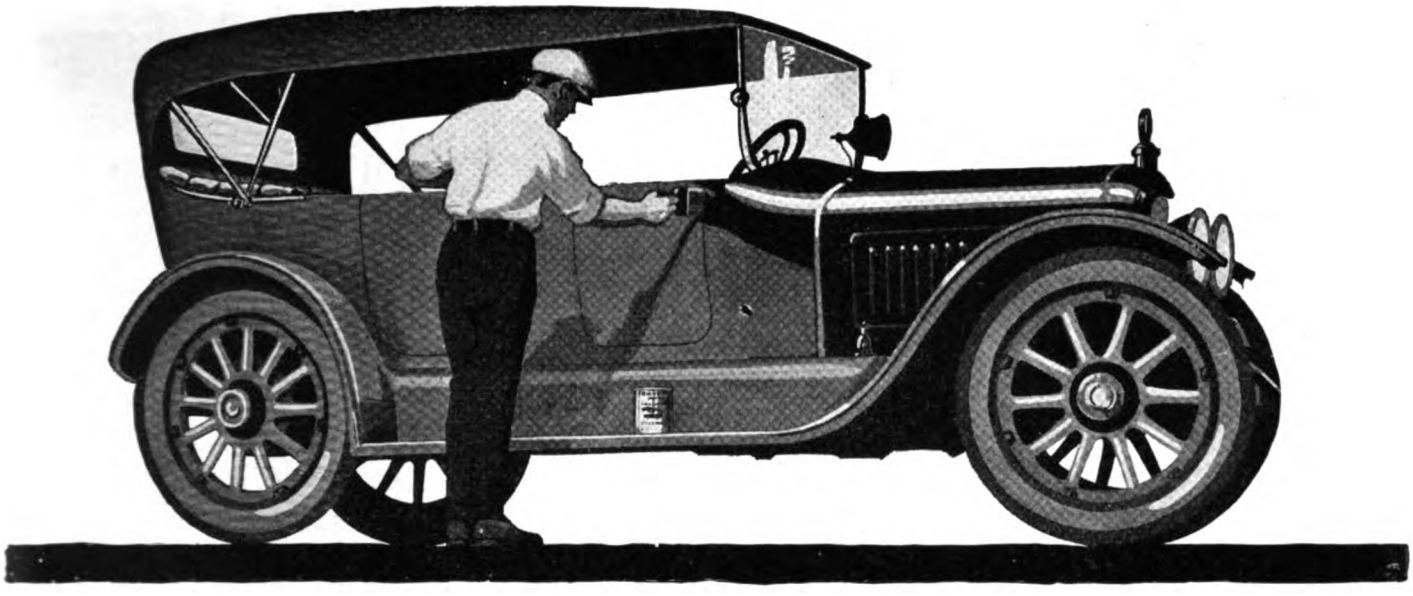
The first and strongest appeal of the new car will doubtless be its unusual smartness and beauty.

Ultimately, however, we feel sure that you will derive your *greatest* satisfaction from the extraordinary comfort you enjoy in driving it.

HUPP MOTOR CAR CORPORATION, DETROIT, MICHIGAN

Hupmobile

Digitized by Google



Try It On Your Own Car First

Try Glidden Endurance Auto Finish on your own car. Then you'll be ready to more than back up every single statement we've ever made for this remarkable new Glidden product.

You'll tell your customers that they can refinish their cars easily, quickly, conveniently. Tell them:

"Paint Your Ford for $1.00"

—easily, because Glidden Endurance Auto Finish makes the car like new;
—quickly, because it goes on in short order and dries in less than 48 hours;
—conveniently, because they don't have to lay up the car for a week or two;
—durably, because it will retain its lustre under hardest usage, and severest exposure—heat, cold, snow or sleet.

Remember that thousands of **new** cars throughout the world are finished with Glidden Varnishes. Auto manufacturers are our largest customers. Glidden workmen know the requirements of Auto finishing. Can any set of men produce a better line of finishes for the Auto owner?

How to Get a Quick Start After Auto Finishing Profits

Send today—right now—for details of our four special Auto Finish offers. A complete line-up of goods, advertising and merchandising plans—everything you'll need to make a quick turnover and get the profits.

These offers are subject to change without notice—So act quickly.

THE GLIDDEN VARNISH CO.

Manufacturers of Glidden Pale Wearing Body Varnishes, Quick Rubbing Varnishes, Fender Finishing Enamel, Colored Rubbing Varnishes, Red Metal Primer, etc.

Cleveland, Ohio

Factories: *Cleveland—Toronto*

Branches: *New York—Chicago—London*



Digitized by Google



The FIGHT for MILEAGE

Heroic strength is concealed beneath the lithe, fleet, aggressive, multiple-leaved spring-design Globe Tire tread.

Globes Tires have everything: Strength; Beauty; Resilience; Endurance. Pent-up within their supple sinews is an enormous reserve of mileage.

GLOBE TIRES

HAND MADE - GUARANTEED 6000 MILES

REDUCE THE OPERATING COST OF YOUR CAR

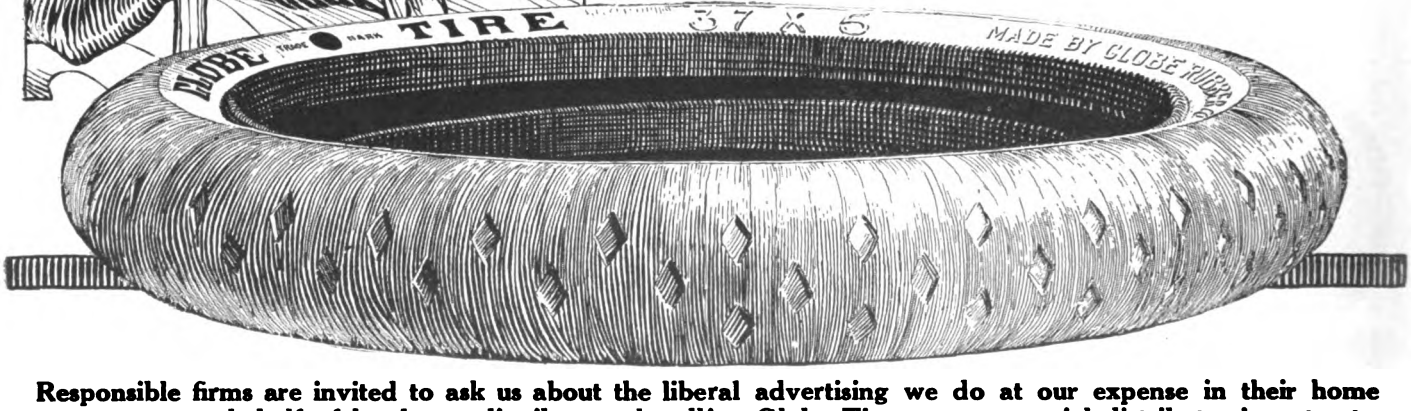
It is economy for cars, great and small, to travel on Globe Tires, made in strictly limited quantities by a company that stands unshaken against the pressure of machine-made, big-volume production.

Cut into the pure, white plantation gum of the tread. Try to tear its tough tendons apart. Exert yourself. Use all your strength. Note the tremendous resistance of this unique tread, specially built to radiate and discharge road shocks, instead of transmitting them into the carcass, which is the life of the tire.

Long Mileage Tires MUST Be Hand Made

Globe Rubber Tire Manufacturing Co.

Executive Offices: 1851 Broadway, New York City
Factory: Trenton, New Jersey, U. S. A.



Responsible firms are invited to ask us about the liberal advertising we do at our expense in their home newspapers on behalf of hardware distributors, handling Globe Tires on our special distributors' contracts. Exclusive, adequate territory will be given to those who qualify.

When writing advertisers please mention Motor World—It identifies you

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ANNOUNCING

The

Goodrich
AUTOMOBILE PRODUCTS

Steering Column

LOCK

FOR ALL CARS

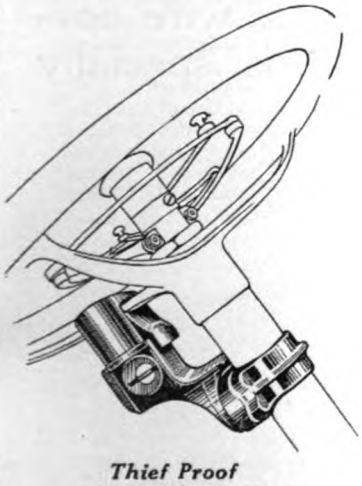
The Yale Lock and Covered Screw Heads Make the Goodrich Steering Column Lock Complete Theft Protection

This latest addition to the Goodrich motor-products family solves the question of automobile safety in a simple but absolutely theft-proof manner.

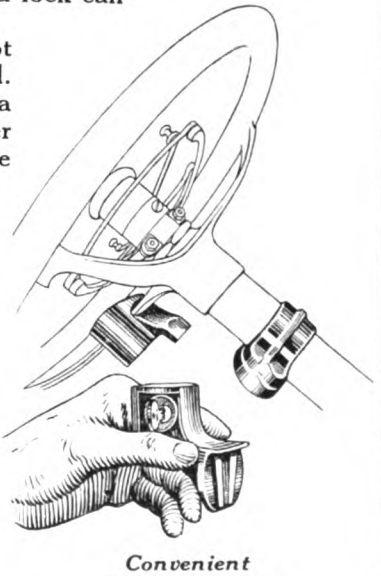
It can be installed in the time it takes to tighten four screws. There are no holes to bore. The patent clamping feature makes the lock an integral part of the steering column. Finished in gloss black japan, it is a handsome addition to steering wheel equipment. When unlocked the connecting arm and lock can be removed when desired and dropped in a coat or car pocket.

A turn of the Yale key makes the steering wheel rigid and the car cannot be driven or towed unless the entire steering column mechanism is removed. In case of fire or accident the car can be pushed a few feet in a straight line, but cannot move under its own power. No leverage or cutting device can damage it.

Write for Steering Column booklet.



Thief Proof When Locked



Convenient When Unlocked

DEALERS

Write direct or to your nearest jobber today for our liberal proposal. The Goodrich Steering Column Lock is backed by a national advertising campaign and practically sells itself.

Goodrich-Lenhart Manufacturing Co.

418 Widener Building

Philadelphia

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Stanwal is the result of years of experience in developing brake and clutch linings. It marks a distinct advancement in manufacture. It is an engineering achievement.

STANWAL
BRAKE LINING
AND CLUTCH FACINGS

Stanwal is the crowning accomplishment in a determination to produce the best possible brake and clutch lining. Tests have proved it superior to any other friction material. It sets a new standard of quality.

The primary base of Stanwal is brass wire covered and protected by a special fabric, specially treated, proof against frictional heat.

Digitized by Google

A feature of this improved fabric is the treatment which gives it the unusual frictional quality. With such care is it compounded that the heat-resisting quality of Stanwal increases as the frictional pressure is applied. In other words, Stanwal improves with use. The yarn from which Stanwal is made is carded and spun in our own factory, under the direction of our own experts. Every facility for the manufacture of quality goods has been provided in this factory—the largest and most complete one devoted to the manufacture of brake and clutch linings.

STANDARD WOVEN FABRIC CO.

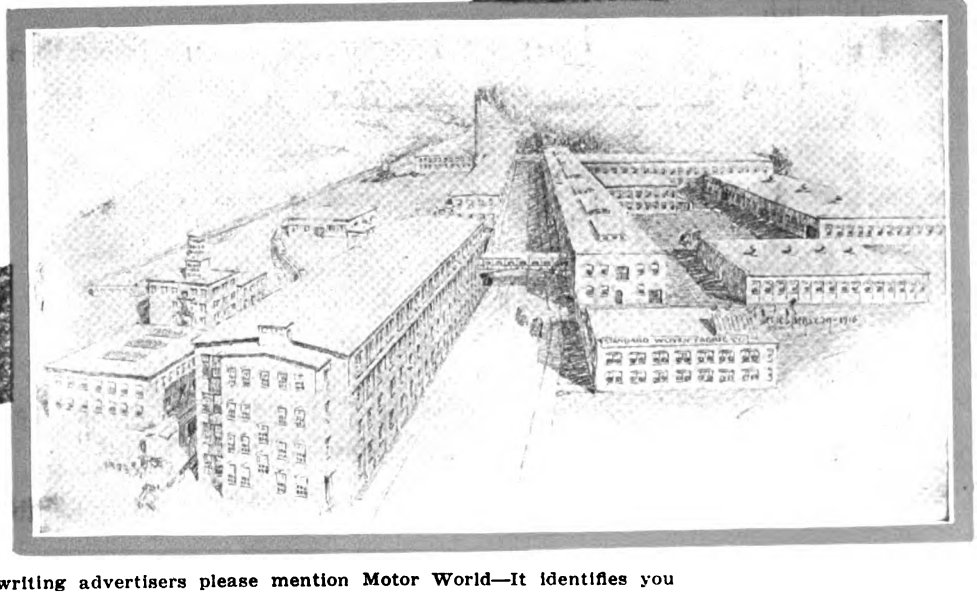
WALPOLE, MASS.

New York Branch and Export Office
1834 Broadway
Chicago Branch Office
1430 Michigan Avenue

Detroit Branch Office
306 New Telegraph Building
Philadelphia Branch Office
406 Colonial Trust Co. Building

Other Stanwal Products

Stanwal Brake Lining and Clutch Facing
Stanwal Friction and Insulating Tapes
Splicing Compounds
Cable and Specification Tapes
Moulded Rubber Goods
Stanwal Matting
Stanwal Rubber Heels
Stanwal Fiber Soles
Tire Tape



When writing advertisers please mention Motor World—It identifies you

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"GIVES ME ALL THE FACTS"



"The Automobile Trade Directory gives me all the facts about everything that is new in the automobile accessory field. Adds to my efficiency."

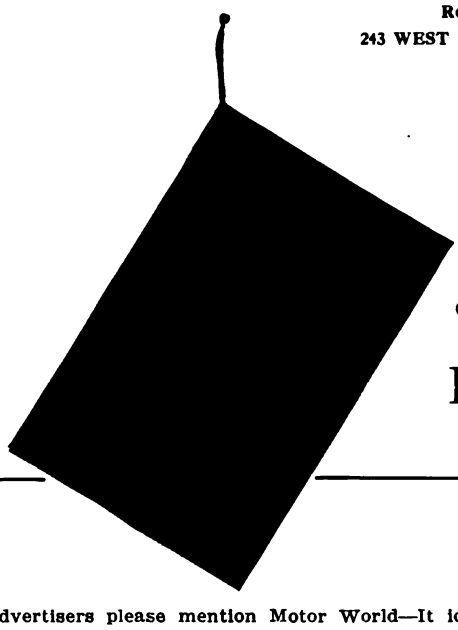
R. S. Mitten

Assistant General Sales Manager,
ELECTRIC APPLIANCE COMPANY

Don't think that the "Red Book" is useful only when buying cars or accessories. It covers every article bought and sold in the industry, old and new. For instance, when you buy garage or shop equipment of any kind, you can find not only a complete list of all the makers of every necessary article, but also descriptions, prices and other essential buying information.

THE AUTOMOBILE TRADE DIRECTORY
ROBERT WOLFERS, President
243 WEST 39TH SRTEET, NEW YORK CITY

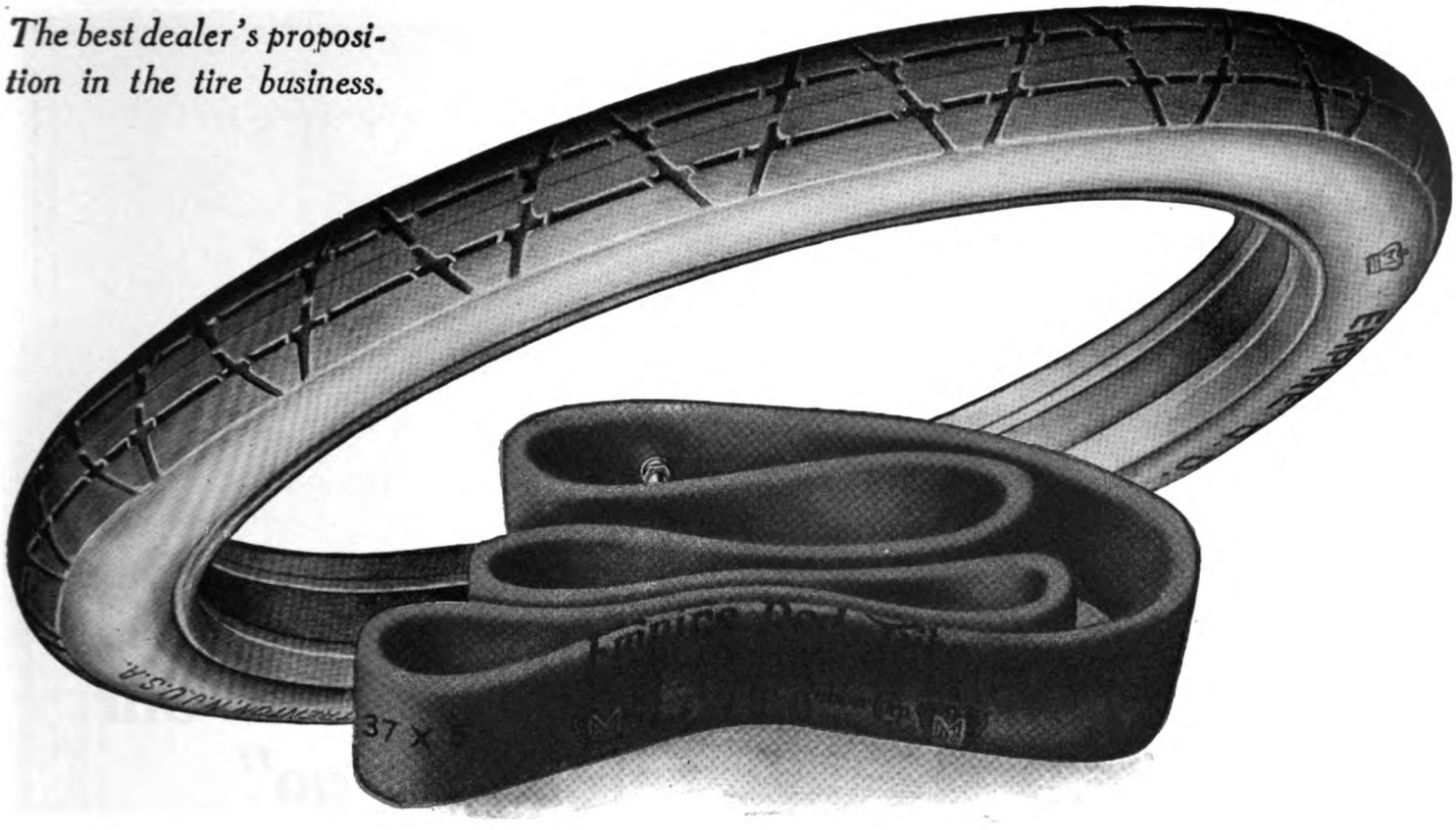
A Thousand Catalogs in One



"It Hangs Everywhere"

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The best dealer's proposition in the tire business.



The tire is as good as the tube
The tube is as good as the tire

For 10 years Empire Red Tubes have been recognized by the trade and car owners as the best on the market. They have come to be called "the tubes that outlive the car itself."

And Empire Casings have won the same high standing. Actual records prove that the ***average*** Empire, in ***average*** running, will deliver thousands of ***extra miles***.

The same fine materials, the same painstaking workmanship, the same secret processes which for 30 years have made the name Empire famous for long life in rubber goods of all kinds, account for the surplus quality of every Empire tire product.

For dealers the Empire proposition is the best in the field.

The margin of profit is the fairest. The sales are increasing the fastest.

And the advertising is wide-spread, powerful and unique. Our full pages in The Saturday Evening Post, The Literary Digest and elsewhere are signed, not with our own name, but as follows: "The Empire Tire Dealer."

Thus we centre the consumer's attention, not on our factory, but on your store, in his own home town.

Empire advertising thus becomes your own advertising, addressed to the car owners of your own locality.

Write for our proposition today.

THE EMPIRE RUBBER & TIRE COMPANY
TRENTON, N. J.

Empire Tires

Digitized by Google



"We want your O. K. on our brakes before we go"

Be sure of the most important part of your car—brake lining!

Your life depends on it. In traffic, on hills, in an emergency, it will act quickly, surely.

Be sure your brakes are O.K.

Before you leave the garage, ask the expert there.

Ten to one you need new brake lining. Ordinary woven lining slips, grabs, wears out.

Reline your brakes at once with the brake lining that can't slip or grab, and that outwears any other lining—Thermoid.

Three reasons for Thermoid

Thermoid has three exclusive features:

1. **It has over 40% more material than any woven lining.**
2. **It is Grapnalized. (This makes it impervious to all moisture, dust, etc.)**
3. **It is hydraulic compressed.**

Don't risk your life and the lives of those who ride with you by driving in a car equipped with defective brake lining.

Make it a point today to go to your automobile man and have him test your brakes. If they are not O.K., have him reline them with Thermoid Brake Lining. Specify Thermoid.

Every inch is sold with this guarantee.

"Thermoid will make good or WE WILL"

Thermoid Rubber Company

Factory and Main Office: **TRENTON, N. J.**

Branches:

New York Chicago San Francisco Indianapolis
Detroit Los Angeles Philadelphia
Pittsburgh Boston London Paris

Canadian Distributors: Canadian Fairbanks-Morse Co., Ltd., Montreal.
Branches in all principal Canadian Cities.

Winter Business—Cold Weather Made Profitable







Makers of "Thermoid Tires" and "Thermoid Garden Hose"

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Quality is Economy



THIS IS THE SIGN OF A HOOD DEALER

THIS sign of a Hood Dealer is a builder of Tire business founded upon the rock of quality.

Not only does it serve as a guide and reminder to the motorist —but, more important, it proves the dealer's absolute reliability.

To be associated with the selling of Hood Tires will give you the reputation for securing your customers' best interests.

Hood Tires are the first choice with the motorist who figures cost per mile of service. And once a Hood Tire user always a Hood Tire user.

Complete details of our agency plan will be mailed upon request to any dealer.

For overnight service don't substitute. See Automobile Trade Directory and Chilton's Directory for list of Hood Tire Distributors.

HOOD TIRE COMPANY, Inc.,
Watertown, Mass.

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Advertising to make YOU money

Inland advertising is a real business builder for you. We are not merely advertising the merits of Inland Piston Rings—we are advertising YOUR BUSINESS—devoting MORE THAN HALF of costly magazine space to urging motorists to have their engines overhauled and new rings installed. No other piston ring advertiser is co-operating with YOU in such a way. We are spending thousands of dollars in this campaign to build up your business—using half pages or full pages in the

SATURDAY EVENING POST
COLLIER'S LITERAY DIGEST

the three big magazines of America with a circulation of 3,600,000. Fall in line! Handle Inlands! You'll make more, and you'll get MORE business, and keep it. Write at once for our proposition.

Inland Machine Works, 815 Mound St., St. Louis, U.S.A.

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THE

ROEDDING SIGNAL TAIL-LIGHT





Signal and horn control conveniently attached to steering wheel or side door.



Returns to Neutral automatically after signalling



Simplicity of operation. Just slide the button toward word on operating disk, which you wish to display on signal.

Dealers — Garagemen, Everywhere
This Is a Ground Floor Proposition

Note this fact:

Selling agencies with EXCLUSIVE TERRITORIAL RIGHTS are now being established for the distribution of the

ROEDDING SIGNAL TAIL LIGHT

Motorists want a signal light. They need it—but *they want it right.*

The ROEDDING overcomes all objections. Its attractiveness, its simplicity, its durability, its weather, dust and rust-proof construction, its convenient operation, are rapid-fire selling points.

Electrically controlled by storage batteries or dry cells. Displays an *instantaneous signal,* in 2-inch letters readable 150 feet away, day and night.

Write or wire for our liberal offer. TERRITORY IS GOING FAST.

K. G. BARKOOT, Sole Distributor

1010-11-12 Chamber of Commerce Bldg., Detroit, Mich.



Fits Any Standard Tail Light Support

Price, Complete, $18

Money Order or Certified Check for amount of sale price brings complete equipment with full directions for installation and operation—charges prepaid.

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forig8!

Gain Lasting Success

Proved quality! Strong *national* advertising! Immediate deliveries from close-at-hand Racine Rubber Company distributors.

Here is *lasting success,* year after year, for dealers who sell

RACINE Country Road and Multi-Mile Cord TIRES



You know the good, solid success dealers have made selling the famous Racine Country Road and Multi-Mile Cord tires—success built on quality alone, without a line of national advertising.

National Advertising!

Now comes national advertising—page after page in the Saturday Evening Post and the Country Gentleman—big space in leading farm papers. A convincing message in each advertisement.

Quick Service from Distributors

Distributors for Racine Country Road and Multi-Mile Cord tires are located at all principal distributing points. They are top-notch tire men. Complete stock always on hand to supply dealer needs immediately.

Perhaps your locality is still open. Write at once.

IMPORTANT: Every genuine Racine Country Road and Multi-Mile Cord tire must bear the name

RACINE RUBBER COMPANY

RACINE, WIS.

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Dealers, are you ready to get your share of the Christmas business or are you going to let every other merchant in town put it over you as you have in the past?

You have a thousand items in Automobile Accessories that are by far more desirable as Christmas gifts to automobile owners than the useless Knic Knacs that are usually given—

Use This Fact to Your Advantage

Robes, Spotlights, Carburetors, A Set of Spark Plugs, Robe Locks, Ignition Locks, Tool Kits, Trunks, Icy Hot Bottles, Heaters, Daylos and innumerable other articles can be suggested—

Run some Advertising in your local Paper

Make up a list of suggested gifts for car owners and keep it prominently before the people. Feature the fact that you will deliver all Christmas gifts—That they will be put up in Holly Boxes and wrapped in Holly Paper—

The other merchants in your town do these things and make money and friends doing it—Why not you?

Ask Your Jobber for His Co-operation

FREE TO DEALERS

The Assisting the Trade Committee of the National Association of Automobile Accessory Jobbers has caused a book to be printed in which is told one man's way of conducting every department of a Garage business. It's free for the asking. Of special interest to new dealers and those who have awakened to the need of more systematic methods in the conduct of their business.

ADDRESS:

MEMBER

National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BUILDING CHICAGO, ILL.

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Tillotson
CARBURETOR

The air valve is to a carburetor what the heart is to the human body —a mighty important part. In either case if the action is "off," trouble is bound to result.

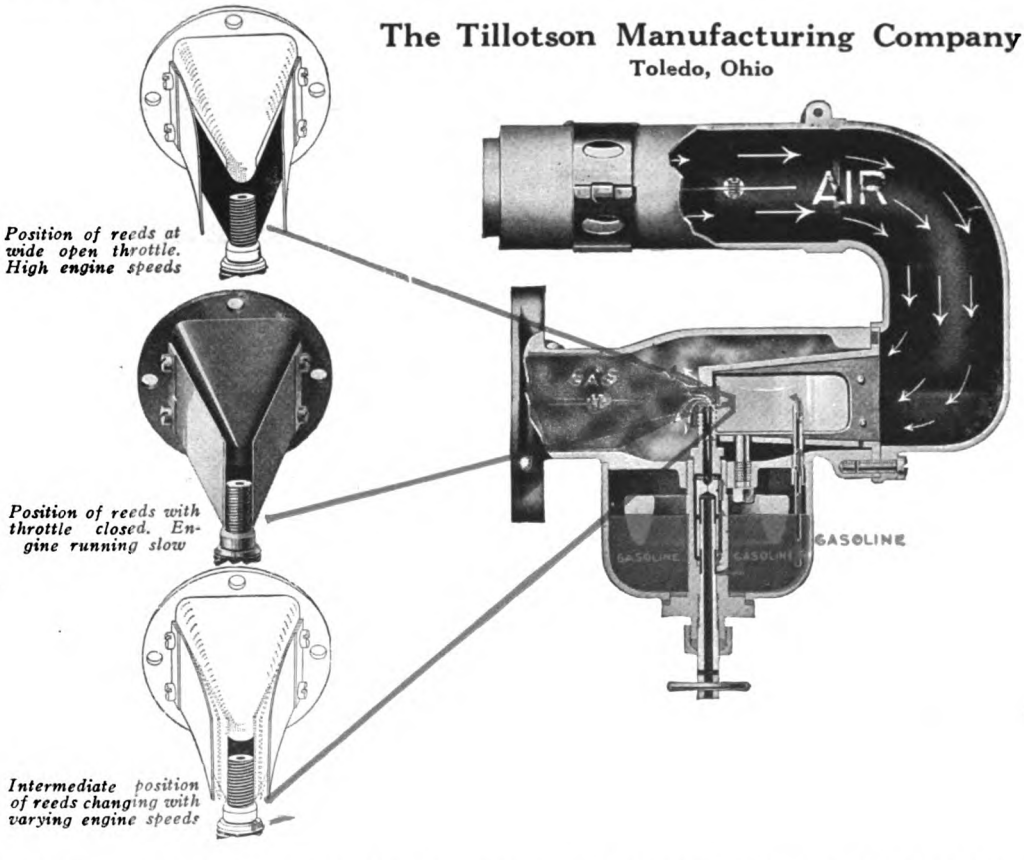
In the Tillotson Carburetor the action of the air valve is absolutely automatic.

Two flexible steel reeds open and close at the fuel supply nozzle, maintaining at all engine speeds the highest possible vacuum and greatest air velocity at this point.

The maximum partial vacuum that the pistons create with the engine running at high speed can only open these reeds a small portion of their elastic limit and their life is practically endless.

The air valve action is but one of the dependable features in the Tillotson design that appeals to automobile engineers and manufacturers.

The Tillotson Manufacturing Company
Toledo, Ohio



Position of reeds at wide open throttle. High engine speeds

Position of reeds with throttle closed. Engine running slow

Intermediate position of reeds changing with varying engine speeds

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A FLOOD
Of Tire Sales and Profits

A TORRENT of new business, good business—first and repeat sales—comes with Ajax Dealer's Franchise. The success of this plan has swept the country. America's leading dealers by the thousands have hastened to secure this unusual and permanent profit opportunity.

AJAX Dealer's Franchise

You know what Ajax in-built quality—Ajax leadership means. You know that its popularity is *proved*—because it is

97% Owners' Choice

Of Ajax total output, over 97 per cent goes to individual motorists—singled out to take the place of tires that came on their cars. Another thing—remember Ajax was the original guaranteed tire.

Guaranteed In Writing 5000 Miles

Remember the *special* selling advantage offered you by the Ajax Road King Tire—the greatest Ajax of them all. A monarch in quality, a democrat in service. Investigate the opportunities for profit in Red and Gray Inner Tubes.

Ajax Franchise Dealers will be the money-making dealers in 1918. They will cash in on Ajax big National Advertising Campaign. By the barest good chance, your territory may be open. Find out. Learn all the advantages, privileges and profits that go with this exclusive opportunity. Wire collect or rush the coupon NOW.

AJAX RUBBER COMPANY, Inc.
1796 BROADWAY NEW YORK

"While Others Are Claiming Quality, We Are Guaranteeing It"

AJAX RUBBER CO., Inc.
1796 Broadway, New York

I am interested in the Ajax Dealer's Franchise. Without obligation to me, send complete details.

Name _____

Address _____

City _____ State _____

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Just Published—1918 New Revised, Reset and Much Enlarged Edition, with 500 New Engravings Added

The Modern Gasoline Automobile

By VICTOR W. PAGÉ, M. S. A. E.

1011 Pages **PRICE $3.00** *1000 Specially Made Engravings*



This is the most complete, practical and up-to-date treatise on gasoline automobiles and their component parts ever published. In the new *revised* and *enlarged* 1918 *edition* all phases of automobile construction, operation and maintenance are fully and completely described, and in language anyone can understand. Every part of all types of automobiles, from light cycle-cars to heavy motor trucks and tractors, are described in a thorough manner, not only the automobile, but every item of it; equipment, accessories, tools needed, supplies and spare parts necessary for its upkeep, are fully discussed.

It is clearly and concisely written by an expert familiar with every branch of the automobile industry and the originator of the practical system of self-education on technical subjects. It is a liberal education in the automobile art, useful to all who motor for either business or pleasure.

Anyone reading the incomparable treatise is in touch with all improvements that have been made in motor-car construction. *All latest developments, such as high speed aluminum motors and multiple valve and sleeve-valve engines, are considered in detail. The latest ignition carburetor and lubrication practice is outlined. New forms of change speed gears, and final power transmission systems, and all latest chassis improvements are shown and described. This book is used in all leading automobile schools and is conceded to be the* STANDARD TREATISE. The chapter on Starting and Lighting Systems has been greatly enlarged, and many automobile engineering features that have long puzzled laymen are explained so clearly that the underlying principles can be understood by anyone. This book was first published six years ago, and so much new matter has been added that it is nearly twice its original size. The only treatise covering various forms of war automobiles and recent developments in motor-truck design as well as pleasure cars. **This book is not too technical for the layman nor too elementary for the more expert. It is an incomparable work of reference for home or school.**

Automobile Repairing Made Easy

By Victor W. Pagé, M.E.

A thoroughly practical book containing complete directions for making repairs to all parts of the motor car mechanism. Written in a thorough but non-technical manner. Will be found of special value to garage-men, chauffeurs and automobile mechanics; it also contains a mass of general information that will be of equal value to the motorist who takes care of his own car.

This book contains special instructions on electric starting, lighting and ignition systems. Tire repairing and rebuilding. Autogenous welding. Brazing and soldering. Heat treatment of steel. Latest timing practice. Eight and twelve cylinder motors, etc., etc. A guide to greater mechanical efficiency for all repairmen.

1,000 Specially Made Engravings on 500 Plates. 1,056 Pages (5½ x 8), 11 Folding Plates. 1917 Edition. Price, $3.00.

How to Run an Automobile

By Victor W. Pagé, M.S.A.E.

This treatise gives concise instructions for starting and running all makes of gasoline automobiles, how to care for them, and gives distinctive features of control. Describes every step for shifting gears, controlling engines, etc. Thoroughly illustrated.

Price, $1.00 net.

The Model T Ford Car, Its Construction, Operation and Repair

By Victor W. Pagé, M.E.

This is a complete instruction book. All parts of the Ford Model T Car are described and illustrated; the construction is fully described and operating principles made clear to everyone. Every Ford owner needs this practical book. New edition. 75 illustrations, 200 pages. Large folding plate.

Price, $1.00.

Starting, Lighting and Ignition Systems

By Victor W. Pagé.

A practical treatise on modern starting and ignition system practice. Includes a complete exposition of storage battery construction, care and repair. Explains all types of starting motors—generators—magnetos and all ignition or lighting system units. Considers the systems of cars already in use as well as those that are to come in 1918. A book every one needs. Nothing has been omitted, no details have been slighted. A book you cannot afford to be without.

Nearly 500 pages. 297 Specially Made Engravings. 1917 Edition. Price, $1.50

Storage Batteries Simplified

By Victor W. Pagé, M.E.

A comprehensive treatise devoted entirely to secondary batteries and their maintenance, repair and use.

This is the most up-to-date book on this subject. Describes fully the Exide, Edison, Gould, Willard, U. S. L. and other storage battery forms in the types best suited for automobile, stationary and marine work. Nothing of importance has been omitted that the reader should know about the practical operation and care of storage batteries. No details have been slighted. The instructions for charging and care have been made as simple as possible. 250 pages. Very fully illustrated.

Price, $1.50.

The Automobilist's Pocket Companion and Expense Record

Arranged by Victor W. Pagé, M.S.A.E.

This book is not only valuable as a convenient cost record, but contains much information of value to motorists. Includes a condensed digest of auto laws of all States, a lubrication schedule, hints for care of storage battery and care of tires, location of road troubles in all parts of the car, anti-freezing solutions, horse-power table, driving hints and many useful tables and recipes of interest to all motorists. Not a technical book in any sense of the word, but a collection of practical facts in simple language for the everyday motorist.

Convenient pocket size, handsomely bound in limp leatherette cover. Price, $1.00.

Automobile Questions and Answers

By Victor W. Pagé.

This practical treatise consists of a series of thirty-seven lessons covering well over 2,000 questions and their answers on the automobile, its construction, operation and repair. The subject matter is absolutely correct and explained in simple language. If you can't answer all of the following questions you need this work. The answers to these and 2,000 more are to be found in its pages.

Give the names of all important parts of an automobile and describe their functions. Describe action of latest types of kerosene carburetors. What is the difference between a "double" ignition system and a "dual" ignition system? Name parts of an induction coil. Howe are valves timed? What is an electric motor starter, and how does it work? What are advantages of worm drive gearing? Name all important types of ball and roller bearings, etc., etc.

650 Pages. 350 Illustrations and Plates. 1917 Edition. Price, $1.50.

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ST. LOUIS, MO. U.S.A.

Expert or novice, the man who doesn't know the price of a Moon never thinks of guessing less than $3000.

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1918 MOON Cars

Six-45
7-pass. Touring and Club Roadster
$1685
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emphasize this characteristic distinctiveness of appearance, finish, dependability and hardihood that are so obviously the combined work of the expert designer, coach builder and mechanic. No matter what type you want, you will find its smartest, most reliable expression in the corresponding 1918 Moon model.

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The Moon Six-36 is quite up to the standard set by the Six-45 and Six-66 for extreme stylishness and smooth-running and stand-up qualities — 114-inch wheel-base — up-to-the-minute in its appointments. Equipment includes Continental Red Seal 2⅞x4½-inch motor, developing 36 horsepower—Spicer joints—Timken bearings—Fedder radiator—true honeycomb—and double cowl—both extra high.

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The unusual value offered in a Six that will sell at the price of the medium-priced Four, coupled with the information that the factory has been increased in size to manufacture 10,000 of these cars, has been interesting to both consumer and dealer. Dealers everywhere have been quick to see the selling possibilities and seize the open territory by wire as well as personal trips to the factory. Some choice locations still open.

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St. Louis, U. S. A.

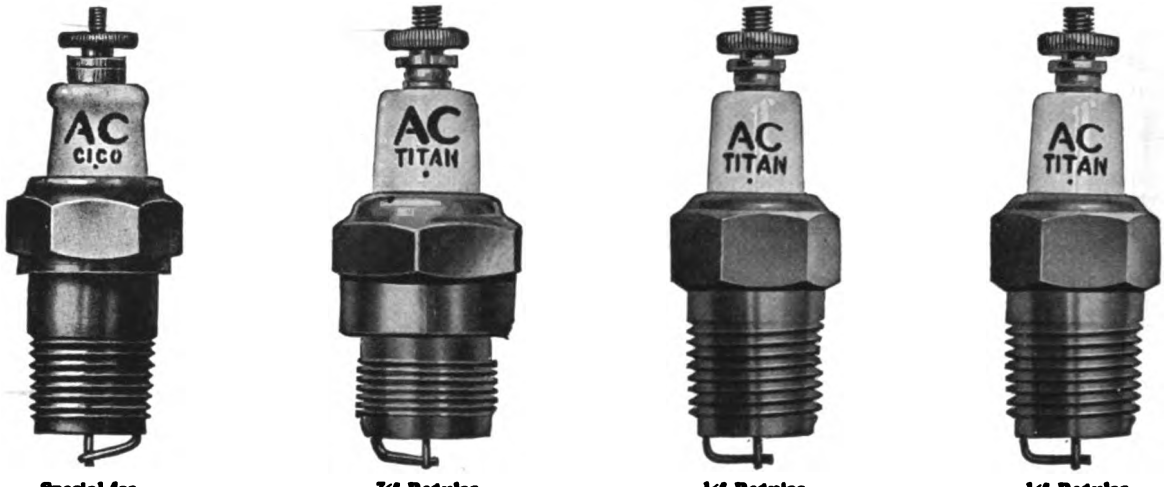
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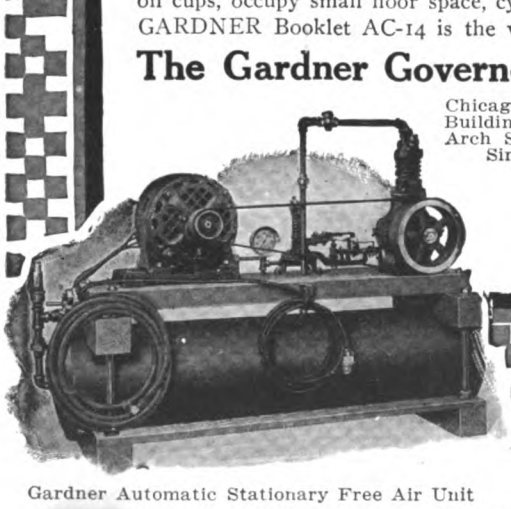
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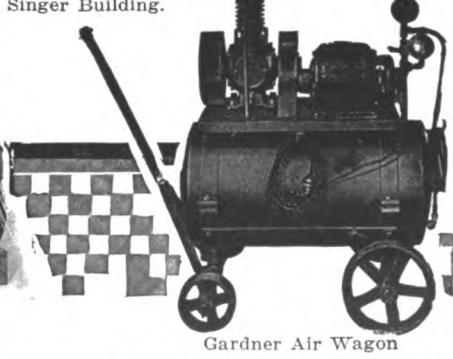
The Gardner Governor Company, 144 Williamson St., Quincy, Ill.

Chicago, 1702 Fisher Building. Philadelphia, 604 Arch St. New York, 302 Singer Building.

Los Angeles, Rix Compressed Air & Drill Co., 409-11 E. 3d St. San Francisco, Rix Compressed Air & Drill Co., 505 Howard St.



Gardner Automatic Stationary Free Air Unit



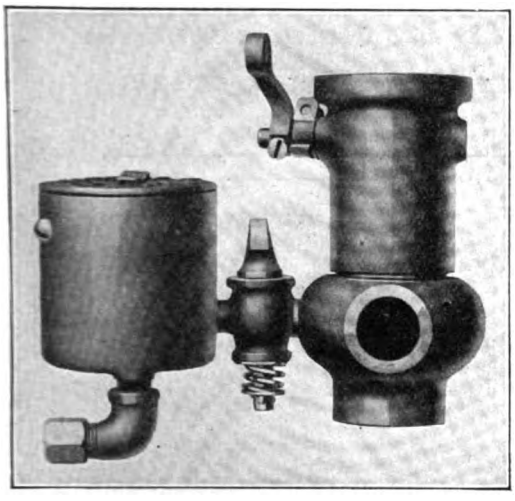
Gardner Air Wagon

Gardner "Midget" Portable Pumping Unit.



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THE Detroit Kerosene Carburetor makes it possible to use kerosene (coal oil) as a motor fuel.

The simplicity in the scientific construction of this carburetor for low grade fuel makes for its efficiency.

The Detroit KEROSENE Carburetor

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While the average mileage of a Ford with standard carburetor is 18 miles per gallon—gasoline, costing 21 cents; the average mileage with Detroit Kerosene Carburetor is 25 miles per gallon—kerosene, costing 10 cents.

In other words:

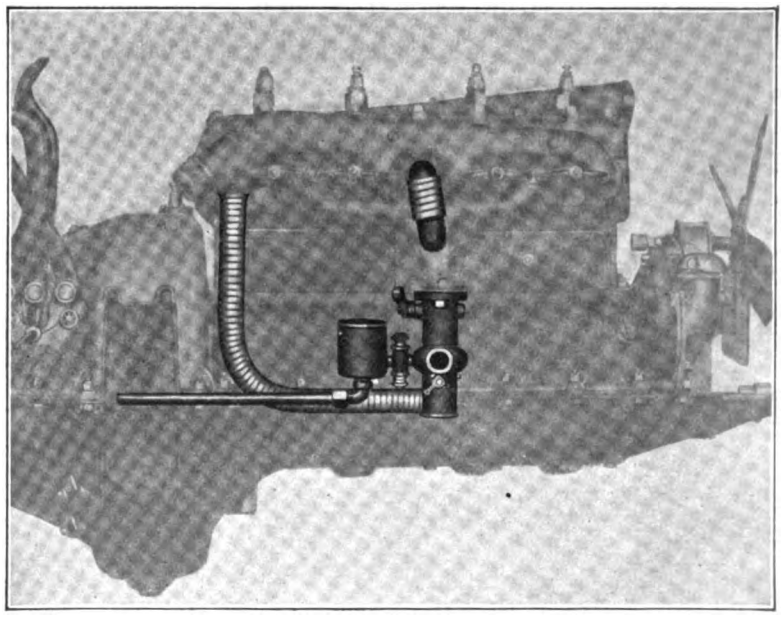
100 miles cost	$1.16 on gasoline
Against	.40 on kerosene
Which is a saving of	.76 on 100 miles

Price—$22.00, f.o.b. Detroit (Detroit Bank Check, Postal or Express Money Order), including gas tank, flexible tubing, brass tube and coulpings, ready to be attached.

Sold with **absolute guarantee** on thirty days' trial or **money back.**

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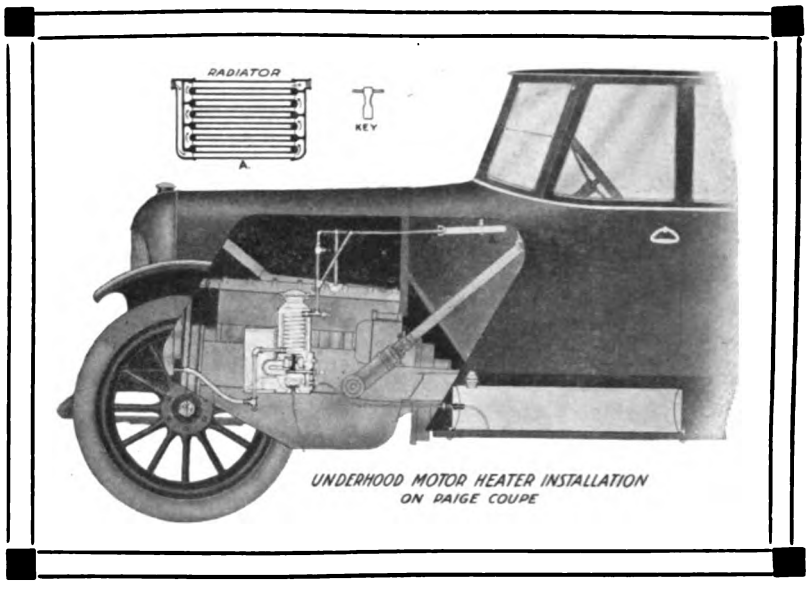
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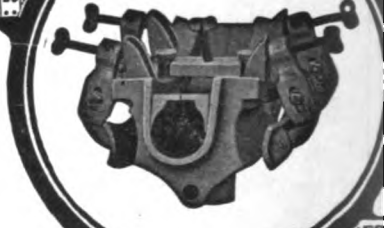
UNDERHOOD MOTOR HEATER INSTALLATION ON PAIGE COUPE

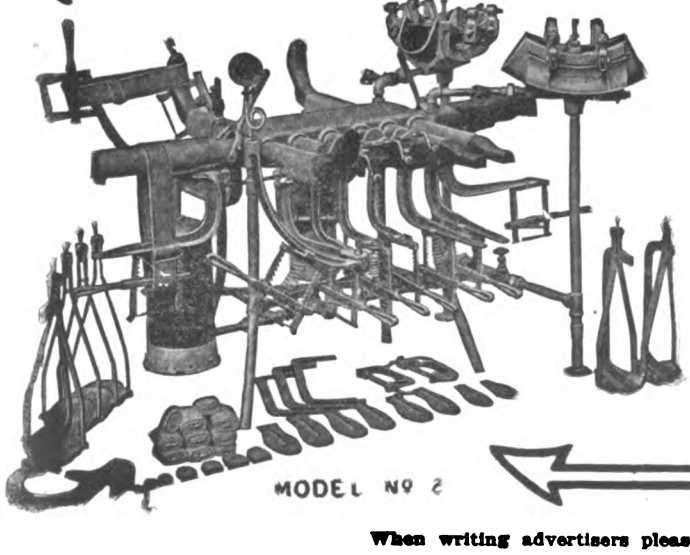
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It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year





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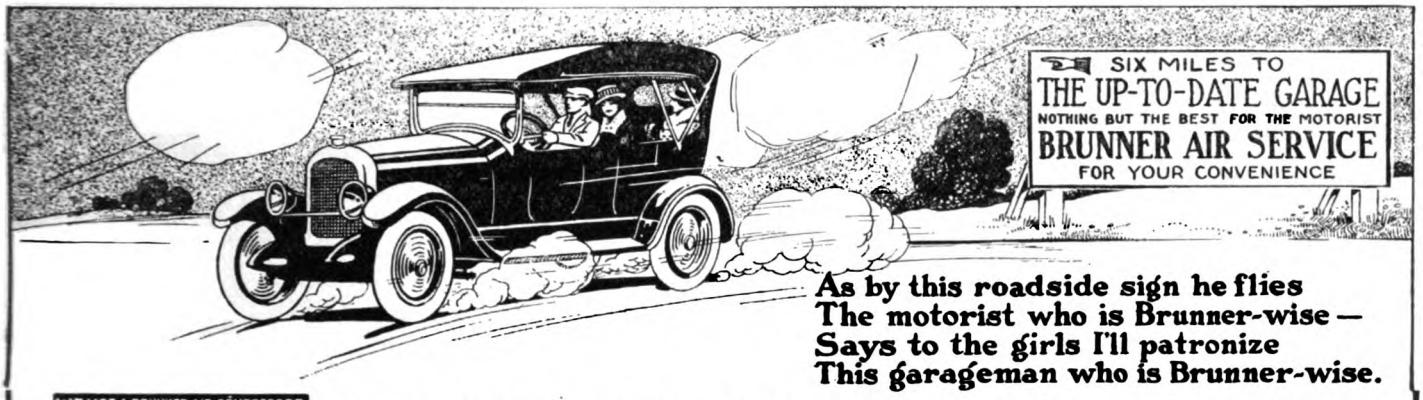
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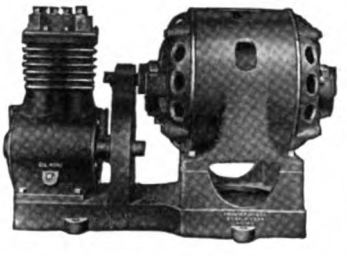
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Says to the girls I'll patronize
This garageman who is Brunner-wise.

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FREE AIR
FOR YOUR CONVENIENCE

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There is no better way to make the cold winter months profitable than to improve your service, because the cold weather motorist is a good spender looking for prompt and efficient service—and the garageman who offers that class of service will find his winter business more profitable. Brunner service would prove a step in the right direction. Install a Brunner outfit.

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The Brunnerwise Motorist

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The Brunnerwise Garageman

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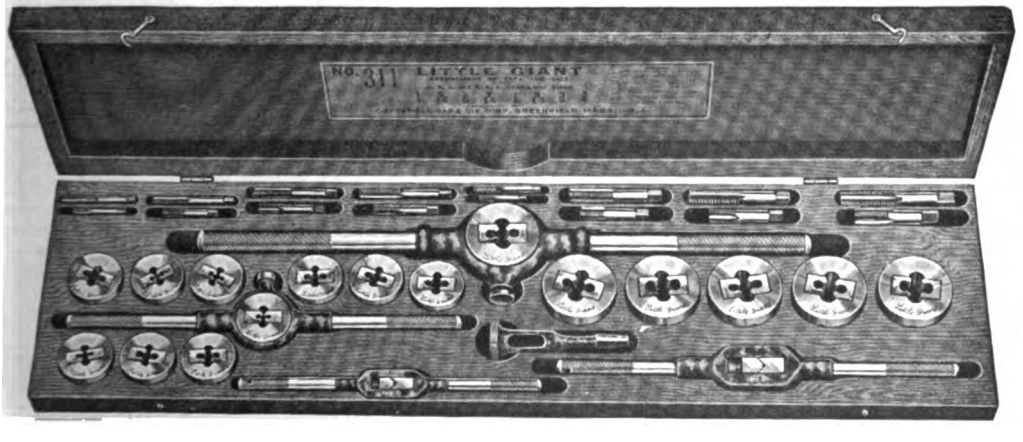
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A No. 2 Lectroflater, the most efficient and economical electric air pump of its size built, is installed in the upper compartment. This is kept locked.

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will illuminate

AUTOMOBILE GAUGES

as well as

AIRPLANE INSTRUMENTS

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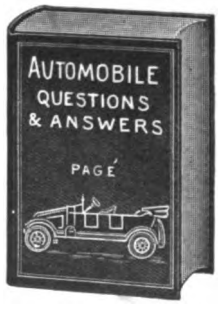
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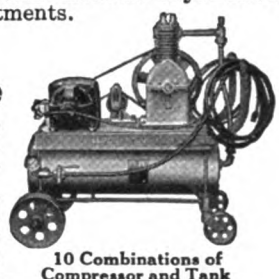
The Curtis Compressor is the only one designed to prevent flooding the cylinder with more oil than it needs for lubrication. This, because of our controlled-splash oiling system. No excess oil is forced into the air line. **Oil ruins tires**—air free from oil means fewer blowouts and increased mileage all around for your customers, with less tire adjustments to you. Make your place the most popular one in town. An easy and inexpensive way, is to install a Curtis Compressor. The customer assumes if you have the best free air service, you will have the best service in all departments.

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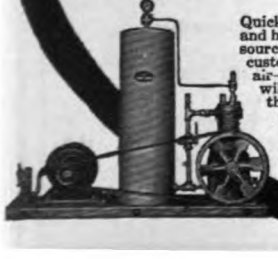


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Curtis Compressors are built to meet the requirements of your business in sizes, arrangements and prices. Send coupon at once for full information and attractive prices. It will pay you to investigate our proposition. *Write us today, or ask your jobber for prices—but insist on a Curtis.*



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Curtis Pneumatic Machinery Co.

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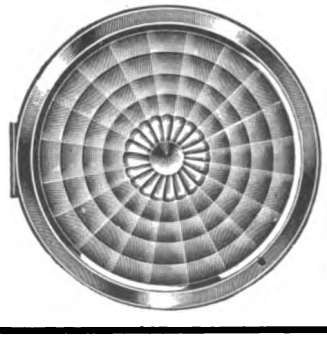
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A Truck and Name That Means Much in Traffic and Transportation

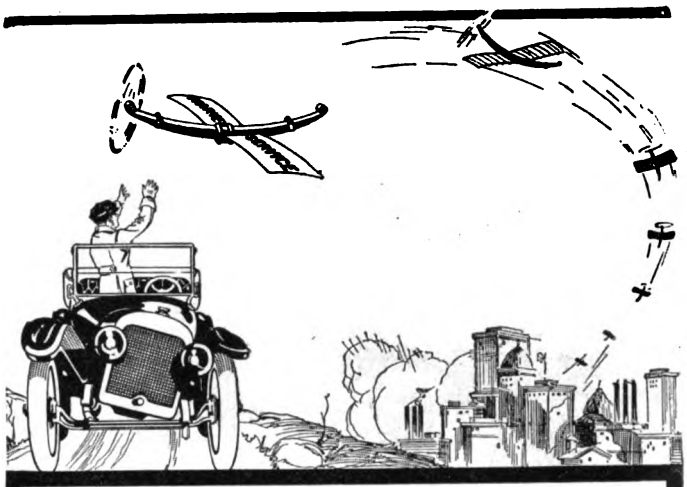
INTERNATIONALS are bearing a surprisingly large part of the nation's burdens in this trying period when it is the duty of every factor in American commerce to render the best service without waste or delay.

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International Harvester Company of America
(Incorporated)
155 Harvester Building **Chicago U S A**



Harvey to the Rescue

A broken spring—a frenzied customer calling for help—demanding a new spring "rush"! It's an odd size; you have none in stock to match it!

And yet, you realize the importance of giving this customer real service, not particularly for the profit in this one job alone, nor even for the trade of this one customer, but because service at a time like this will bring the word-o'-mouth publicity which follows naturally when a customer is pleased.

So you call Harvey RACINE

to the rescue. There's a Harvey Jobber near you, you get him on long distance, in a few words tell him your needs, and then turn to your customer with the satisfied feeling of work well done, because you know that already the exact spring you want and the best spring money can buy is speeding to you.

"That's service"! says the customer. And when his car is on the road again he tells his friends about it and they say with him, "That's service"!

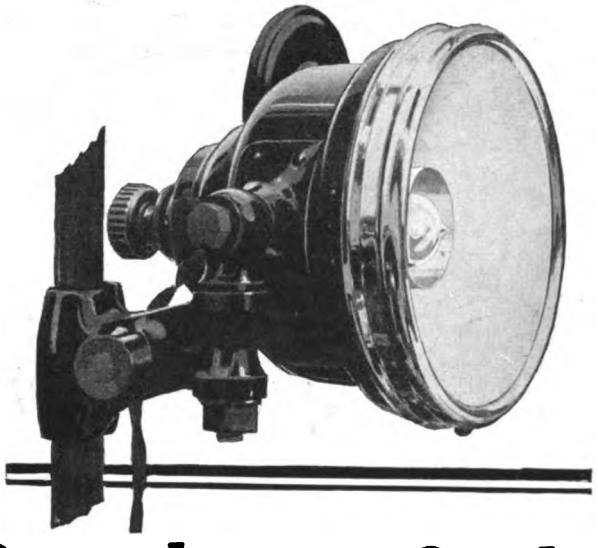
That *is* Service, Harvey Service, and it's always ready to help you build a business that will be respected far and near. They may forget the name of the spring you used but the memory of the service you have given will never be lost.

There's A Harvey Jobber Near You

Drop us a card and we will send you his name and our Spring Book giving complete weights, styles, measurements and prices of over 900 different kinds of springs. Write today —you may need Harvey Help tomorrow.

Harvey Spring & Forging Co.
908 17th St., Racine, Wis.

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Bought on Sight!

THE motorist who wants a searchlight buys the Red Spot *on sight* simply because the Red Spot Searchlight possesses more exclusive advantages than any other searchlight. It gives *more*, but does not cost more.

A touch of a button advances a red cylinder and—Presto! the powerful, white beam is transformed into an attention-compelling, red danger signal. That's an added safety feature. The motorist is protected while making roadside repairs; when turning; crossing; stopping; or in any emergency.

Red Spot Searchlight

Special Features:

Adjustable focus; rotary switch in handle; universal easy-moving, springless, rattleproof bracket; rear view mirror, instantly adjustable to any position regardless of position of searchlight. Accurate parabolic brass—not steel—reflector, heavily silver-plated, weather-tight, dust-tight, bezel and glass. Switch, socket and lamp removable in one unit—no danger of scratching reflector. Heavy gauge shell, finished with two coats of black enamel BAKED on—not painted.

Get your money's full worth—buy a Red Spot Searchlight. Complete for $7.00. There is a Red Spot for your car.

DEALERS—The Red Spot Searchlight is readily *bought* and quickly *sold*—it has so many extra features that it *does* sell on sight. Write for illustrated folder and terms on this rapid seller.

The F. W. Wakefield Brass Co.

10 Wakefield Street ***Vermilion, Ohio***



Emergency Jobs

DEMAND GOOD TOOLS

"MORSE" DRILLS

Will put Straight Clean Holes where you want them when you want them. Whether you drill by hand or power you need "Morse" Drills.

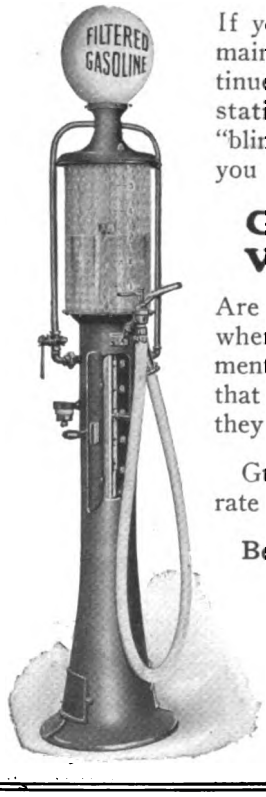
Catalog on request



MORSE TWIST DRILL & MCH. COMPANY

New Bedford, Mass.

MONEY TALKS WITH DEALERS



If you still think business will remain good and car owners will continue to patronize garages and gas stations where old - fashioned "blind" pumps are in use—it's time you woke up.

GUARANTEE VISIBLE PUMPS

Are getting the business everywhere. There is no sound argument in defense of filling systems that do not show customers what they are paying for.

Guarantee pumps are fast, accurate and never need adjusting.

Better write us today.

GUARANTEE LIQUID MEASURE CO.

Farmers Bank Building
Pittsburgh, Pa.

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WILLIAMS'

SILVERBEAM SEARCHLIGHTS SELL

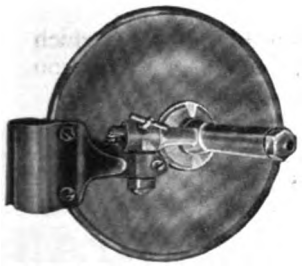
More readily than lower priced lamps when side by side on the dealer's counter, because they are

HANDSOME—Designed on beautiful lines, in harmony with the refined fittings demanded in the modern motor car.

WELL MADE—Superior workmanship showing at every point. Anti-rattling, heavy plating, baked enamel, connections complete.

PORTABLE—Readily detached to serve as trouble lamp—ten feet of cord gives easy access to every part of car.

LAW COMPLYING—The Williams locking bracket guards against infraction of laws regulating elevation ahead.



SILVERBEAM

$9.00 Baked enamel and nickel, in black or colors, convex lens, 6-inch reflector. With 7-inch reflector $10.00

Proven by three years' satisfactory service

Liberal Dealer Discounts

At All Jobbers, or Write

Williams Mfg. Co.

310 N. Flower, Santa Ana, Cal.

DAYTON

QUICK DETACHABLE

WIRE WHEELS

MADE UNDER LICENSE

FOR FORD CARS

Quick Change and Economy

The remarkable resiliency which insures 25% more tire mileage without affecting the important feature of strength is only one of the features of Dayton Wire Wheels. In addition there is always that ease of mind of making tire change with the minimum of inconvenience. When the thermometer stands at zero you will appreciate the quick change feature of Dayton Wire Wheels.

To change a tire the complete wheel is changed so that it is merely necessary to unscrew and replace the hub cap. The spare wheel is carried with tire inflated ready for instant mounting. Furnished in any desired color.

DEALERS AND JOBBERS

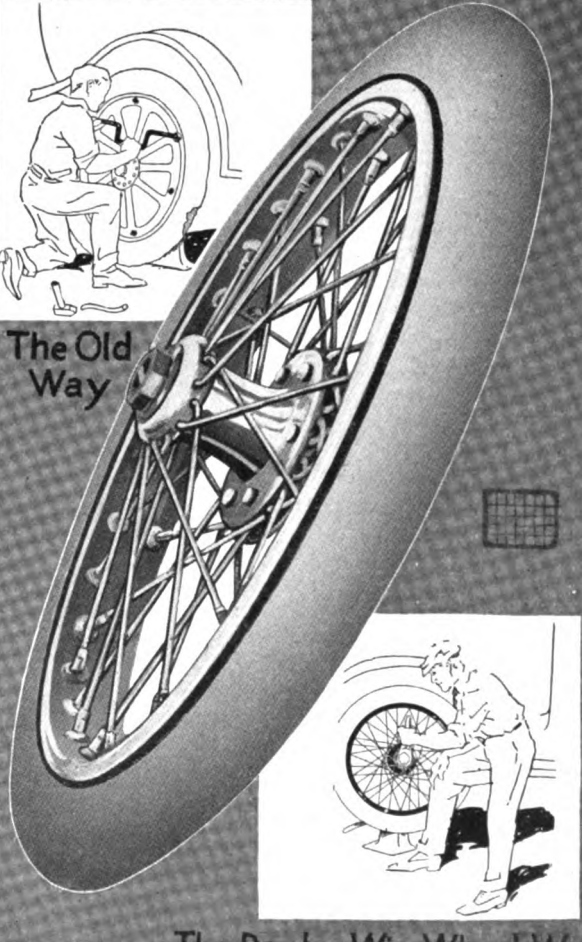
Dayton Wire Wheels insure more sales, more profits and more satisfied customers. Order today.

Deliveries Now

THE DAYTON WIRE WHEEL CO.

826 Miami Road, DAYTON, OHIO

The Old Way



The Dayton Wire Wheel Way

"Easy" Money and "Good" Money



HENNEY

Commercial Bodies for Ford Cars

meet an urgent need in every community. Sell one and it's a traveling, trade-pulling advertisement for the man who buys it and for the dealer who sold it. Built to fit new Ford one-ton truck and for extended Ford chassis. Supplied direct from factory to dealer for cash—saves selling expense—allows a larger margin of profit. Our line also includes car fenders, for which there is a large demand at good profit.

We build also a complete line of

HENNEY TRUCK BODIES

for New Ford One-Ton Truck and extended Ford chassis—to fit any of the truck units now on the market.

Our many branches insure quick service and helpful co-operation. Write for liberal agency proposition and illustrated catalog showing full line of Henney Bodies. **Some Good Territory Open.**

Address Sales Office or nearest Branch

HENNEY BUGGY

BRANCH OF MOLINE PLOW CO.

Factory: Freeport, Ill. Sales Office: Moline, Ill.

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Warm Hands With
STEER WARMS

Two neat, leather-covered, copper grips, one for each hand, which lace on to the wheel; electrically heated from the storage battery or magneto; consuming less current than the headlights; operating on the same principle as electric heating pads; no bolts or screws or holes to bore—just lace on and wire up and you're ready to ride in ten minutes. Nothing to get out of order; no expense for upkeep.

GUARANTEED to be made of the best materials and by the best workmanship, and against burn-out for five years. Money refunded if they fail in any way to do all we claim for them.

GET THE GENUINE

Steer Warms are the ONLY hand-warmers in which the heating element is protected, insuring uniform and unbroken heat. Don't experiment with infringements — get the genuine Steer Warms.

PRICES:—For all gasoline cars, $7.50 a pair (in Canada $11).
Special for Ford Cars, $5.00 a pair (in Canada $7.25).

GOOD PROFIT TO DEALERS

Liberal discounts from retail prices give dealers good profits in handling Steer Warms, and national advertising and dealers' aids which we furnish make Steer Warms "big sellers." It will pay YOU to handle them. Write for full information.

Interstate Electric Co.
846 Perdido Street
New Orleans





"I put My Car up for the Winter!"

"The Old, Old Story oft repeated: Unsatisfactory lubrication—Oil would not flow at Zero—Scored Cylinders."

"It's different now—I have found an oil which 'Flows Freely at Zero'—gives perfect lubrication and leaves less carbon."

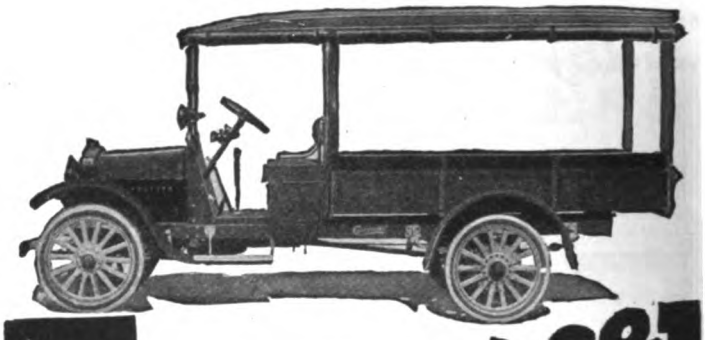
"I run her all year 'round on

SUPREME AUTO OIL

Sold everywhere you see the Sign of the Orange Disc."

MANUFACTURED BY
GULF REFINING COMPANY

The Largest Independent Refining Company in the World



Commerce

1 Ton Trucks

A Year Ahead of Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

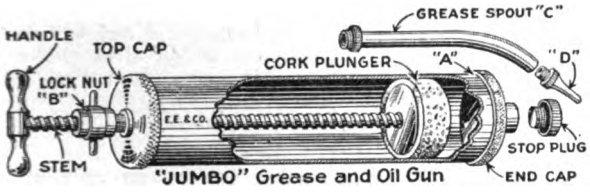
One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

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"JUMBO"
Combination
Grease and Oil Gun



"JUMBO" Grease and Oil Gun

The last word in Grease Gun construction! Every car owner should have a **Jumbo Grease Gun!** The best value on the market today for the money. Notice the Cork Plunger—the quick change feature from grease to oil—the combination Grease and Oil Spout!

The **Jumbo Grease Gun** holds 15 ounces of heavy grease. Length of barrel 9", diameter of barrel 2". Made entirely of brass and steel. Finished in a high class manner. Guaranteed for a life time. Price $2.50.

Dealers send for discounts. You Jobber carries the Jumbo Grease Gun. If he cannot supply you, write to us.

E. EDELMANN & CO.

363 E. Ohio St. **Chicago**

Dealers: Send for our Complete Catalog of high-grade Auto Specialties



Air is Life!

Insufficiently inflated tires mean excessively inflated tire bills. Keeping your air pressure up means keeping your tire expense down.

Test your air pressure daily with a

Twitchell Air Gauge

and give your tires new air whenever they need it.

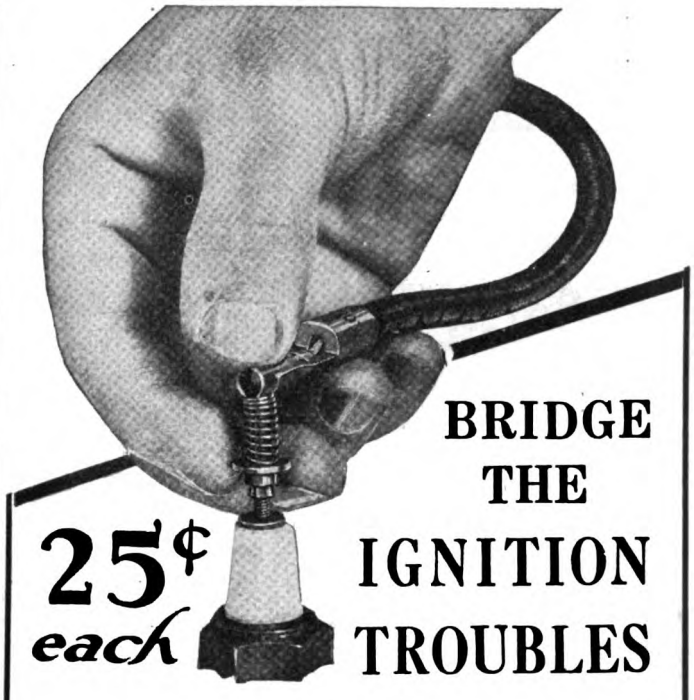
New Air Is Cheaper Than New Tires

At your dealer, or

The Twitchell Gauge Co.

1220 Michigan Avenue, Chicago

Price $1.25



BRIDGE THE IGNITION TROUBLES

25¢ each

It's the *span* of a bridge that usually gives way first. Rarely the abutments fail. Just so with the ignition system. The heretofore-overlooked *link between* the source of energy and the plug—the plug *connection*—generally causes your ignition troubles. The

HANDY TERMINAL

eliminates this last source of trouble. Every iota of power reaches the plug. Instead of working loose—instead of impeding the flow of current—vibration and jar make the jaws of the HANDY set firmer. . Particles of foreign matter cannot work between the jaws. The electrical contact cannot be broken. You get a vise-like action that insures permanency.

The jaws of the HANDY are threaded on the inside. These threads engage the threaded center bolt of the plug. Pulling up on the ring with the first and second finger (see illustration) compresses the spring—the jaws release their hold. Reversing the action clamps the jaws again. No nuts to loosen or tighten—nor fish out of the drip pan. No tools required.

The magneto cable is fastened by a ferrule—gripped permanently. The stripped wire is held by a copper clip. The unsoldered connection can't work loose.

The HANDY is the last word in convenience. Three sizes to fit every make of plug.

DEALERS—An accessory without competition. THE accessory with the selling balance—moderate price—national advertising—a real convenience—good profit. It will prove to be one of your best winter sellers. If your jobber can't supply you, send us his name. Your requirements taken care of as promptly as we hope to hear from you.

THE FRANCIS-RAND CO.

Manufacturers of

HANDY PRODUCTS

406 Erie Building, CLEVELAND, OHIO, U.S.A.

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Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. **Why not cash in on this opportunity?** Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. **Six years of Haywood's advertising has standardized the Haywood method.**

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollar on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—are easily operated—**no experience necessary. Here is your opportunity** to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. **It completes your service**—a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.
1042 N. Capitol Ave., Indianapolis, Ind.

Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

Name .....

Address .....

.....



Dealers

Dealers—There's 100% profit in Orez, the best and cheapest anti-freezing solution.

Is non-acid and will not act on metal or rubber. Prevents formation of lime in water. Non-poisonous to skin.

TRADE **OREZ** MARK

ANTI-FREEZE SOLUTION

Shipped to you in crystal form in bags, which makes 50 gallons of solution. 50 gallons is the smallest quantity sold.

You knock the head out of an old barrel, pour in crystals, fill with water and stir until dissolved—ten minutes' work.

We pay the freight, pay for the barrel and furnish spigot.

100% PROFIT

50-gallon bag, $12.50—selling price 50c. per gallon—$25.00.

OREZ is zero spelt backward
ORDER NOW

Orez Manufacturing Company
WEST MIDDLETOWN, OHIO



The Only Engine Stand THAT PROPERLY MOUNTS Every Type of Motor Suspension

And supports it in *any* position, so that the workman may reach all parts with ease and safety.

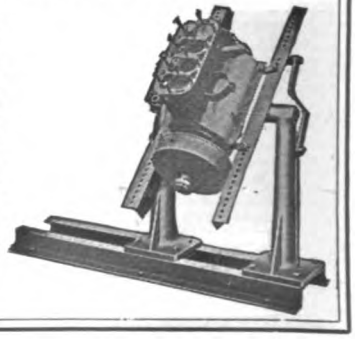
The MANLEY "EVERY WAY" ENGINE STAND

It can be anchored securely to the floor, or moved about the shop easily on roller-bearing casters, as occasion demands.

It can be adjusted to every position in a circle making it equally easy to work on valve mechanism, clean out carbon, grind valves, take up crankshaft, connecting rod, bearings, etc. In each position engine is rigidly locked by two side braces, leaving workman absolutely free and unobstructed. It supports the engine solidly, never gets shaky, and should last a lifetime without repairs.

Prices (with complete equipment), Stationary, $43; Portable, $53.

For 4-point suspension, the brackets are bolted directly to cross arms, having 100 holes. For 3-point, adjustable cross bar shown in cut is provided.

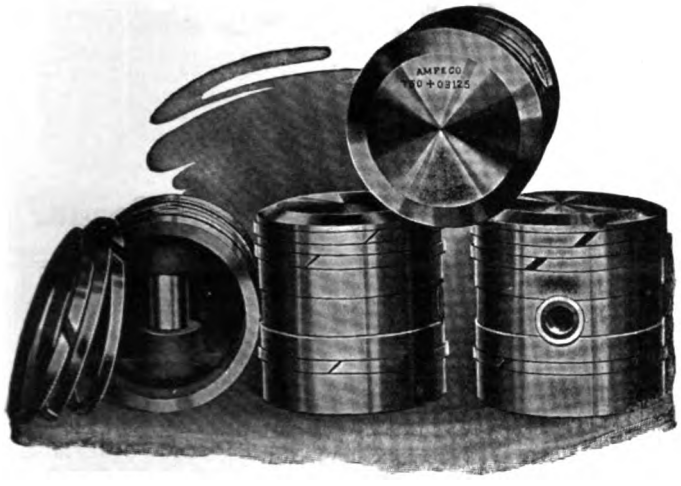


The United Engine & Mfg. Co.
Hanover, Pa.

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Fords Converted Into Trucks and Tractors Can Now Use

"AMPECO" PISTONS



FOR EVERY FORD CAR IN SERVICE

Better running trucks and tractors that pay, smoother running passenger cars that skim along easily under every load, inevitably follow when you install "AMPECO" light weight, evenly balanced pistons in your Ford. Overcome main bearing troubles, give increased power and greater speed. Found always in the most efficient motors on Ford cars.

Use "AMPECO" Pistons and You Use The Best

AMERICAN MACHINE PRODUCTS CO.

MARSHALLTOWN IOWA

Exclusive Sales Agents—**Fulton Sales Company,** Suite 1100, 910 South Michigan Blvd., Chicago, Illinois

Tuthill Titanic Spring Service

Complete Stocks at Selected Centers Insure Best Service

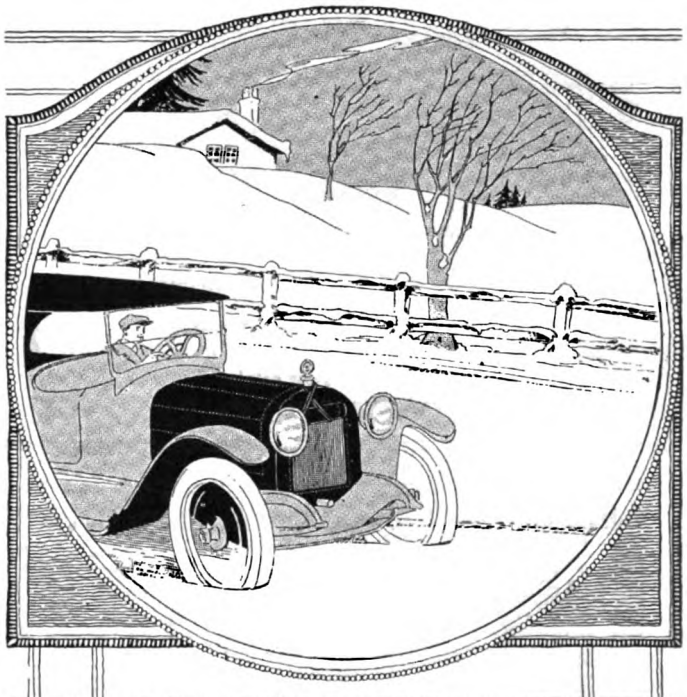
PICKED distributors at 60 selected centers carry complete stocks of Tuthill Titanics ready for immediate shipment.

A garage man or motorist can never be more than one-half to three hours away from one of these stocks. This means quick and intelligent service—a service as superior as Tuthill Titanics are to other springs.

Motorists look for the service sign of Tuthill—they know that Tuthill Titanics have no weakening center bolts or center nibs—are *guaranteed forever against center breakage and at all points and in every respect for one year.* They are easily adapted to any type of axle construction.

Write today for our attractive dealer proposition and price list.

TUTHILL SPRING CO.
(Established 1880)
760 Polk Street Chicago



Uninterrupted Driving

during freezing weather can be made a pleasure if you will equip your car with

Invincible

Radiator and Hood Covers

There will be no thawing out of frozen radiators—no cracked cylinders—no waiting for the motor to warm up when starting away. At all times a responsive, sweet-running motor under the hood.

These covers are tightly tailored to the graceful curves of your car. The special quick roll loop adds extra convenience in covering and uncovering the radiators.

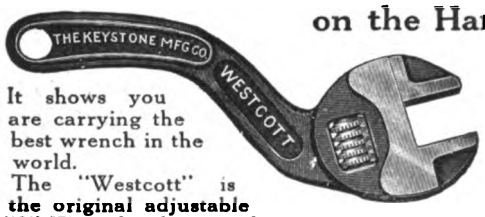
Our catalogue should be at your elbow.

The Peters & Herron Dash Co.

77 S. Gift St. Columbus, Ohio

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The Name "WESTCOTT" on the Handle



It shows you are carrying the best wrench in the world. The "Westcott" is the original adjustable "S" Wrench. It gives the service. Mechanics want them because they know that fact.

Malleable iron handle—Forged Steel Jaw.
Sizes 6 to 14 in. (opens ¾ x2 in.) Price per doz., $8.00 to $21.

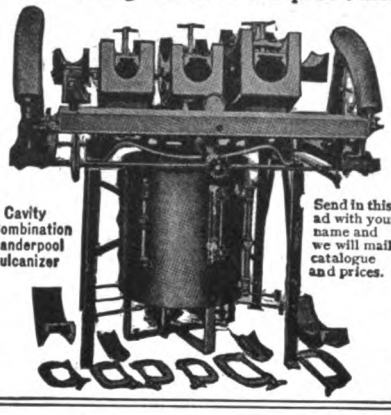
Get them in your catalog

THE KEYSTONE MFG. CO., Buffalo, N. Y.

The Pullmore Front Drive TRUCK is here

Union Arcade, Pittsburg, Penna.

Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



3 Cavity Combination Vanderpool Vulcanizer

Send in this ad with your name and we will mail catalogue and prices.

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

VANDERPOOL COMPANY
Box 82 Springfield, Ohio

It Smothers the Bump

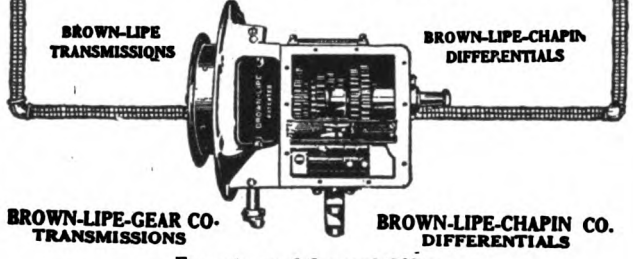


THE NATIONAL GUARD FOR MOTOR CARS

EDWARD V. HARTFORD, Inc., 144 Morgan Street, JERSEY CITY, N. J.

Names Synonymous with the Beginning of the Automobile Industry

BROWN-LIPE TRANSMISSIONS



BROWN-LIPE-CHAPIN DIFFERENTIALS

BROWN-LIPE-GEAR CO. TRANSMISSIONS

BROWN-LIPE-CHAPIN CO. DIFFERENTIALS

Factories and General Offices
SYRACUSE, N. Y.

The Original Double Arm SHOCK ABSORBER W & C For FORD CARS

Recommend W & C

to customers who merely ask for shock absorbers. W & C is what they mean. It insures the easiest riding Fords.

Ask your jobber's salesman or write us direct.

P. H. WEBBER COMPANY
HOOPESTON, ILLINOIS



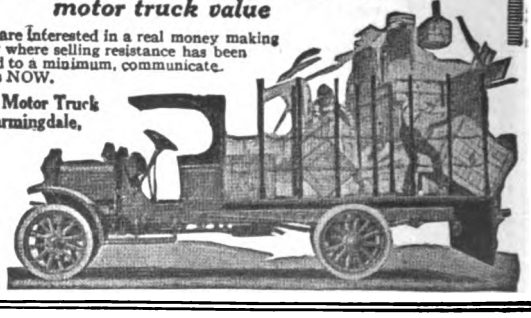
THE FULTON TRUCK

1½ Ton Capacity

Has created the world's standard in motor truck value

If you are interested in a real money making agency where selling resistance has been reduced to a minimum, communicate with us NOW.

Fulton Motor Truck Co., Farmingdale, L. I., N. Y.



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The Universal Cylinder Reboring Tool

Operates on Any Car

Rebores cylinder from start to finish without slightest taper, and perfectly round. Automatic and quick in action. Takes as much as 1/16" oversize in one operation, and completed job will be a smooth finished and true to 1/1000 of an inch.

Range of Expansion, 2½" to 5 1/16". Any type motor.

Write for free illustrated literature and details.

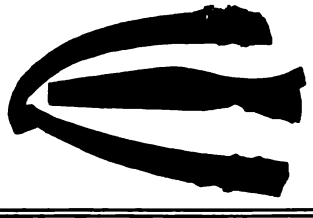
Specify Catalog No. A.

For Sale by Leading Jobbers

THE UNIVERSAL TOOL COMPANY, Inc., Detroit, Michigan

WOODWORTH SPRING COVER and LUBRICATOR

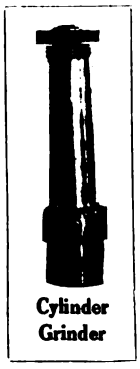
The simplest, most effective and inexpensive spring lubricator and protector on the market. *Exactly* what the motorist wants and *can afford.*



No trouble. Just lace it on over the spring. Leave it there a year and then renew felt wicking (oil soaked) with which it is lined and put it back on for another year.

Dealers find it easy to sell and profitable. Write us today!

WOODWORTH MFG. CORP.
Niagara Falls N. Y.



Cylinder Grinder

You Need It—Get It

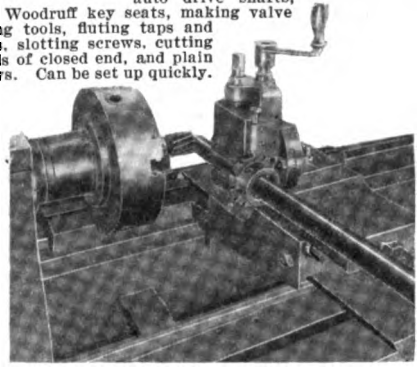
W. B. Lathe Vise

FOR MILLING

Indispensable In Any Busy Shop

The W. B. Lathe Vise handles a large range of milling that does not require a milling machine proper. A paying investment whether you have a milling machine or not.

It is equipped with micrometer on the elevating screw which insures absolute accuracy and it is graduated to degrees for angular work—furthermore it is provided with dividing devices making possible the most common milling operations, such as squaring auto drive shafts, cutting Woodruff key seats, making valve reseating tools, fluting taps and reamers, slotting screws, cutting all kinds of closed end, and plain key ways. Can be set up quickly.



Jaws 2" opening, has steel plates (one plate grooved), range of 4" vertical, swivels 25 degrees, elevating screw ⅝", 8 pitch square thread, adjustable micrometer—jaws screw ⅝", 8 pitch square thread, indexing collar 12 divisions. Price, $60.00 F.O.B. San Jose.

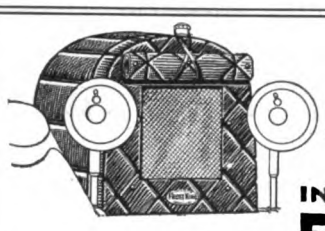
ARTHUR T. BRITTON
Manufacturer of the W. B. Line
590 South 1st St., San Jose, Cal.







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INSIST ON THE GENUINE

FROST KING

Asbestos Insulated Radiator Cover

Save gasoline, protect your engine—your radiator. Engine and radiator covers made of the best insulating material known, genuine asbestos reenforced with heavy Kersey and waterproof imitation leather. Furnished for any car. Dealers be sure to have them on hand before colder weather comes. Prices $2.75, $3.25, $5.00 up. Manufactured exclusively by

CINCINNATI AUTO SPECIALTY CO., Dept. W117, Cincinnati, O.

BETHLEHEM MOTOR TRUCKS

"Dependable Delivery"

$1245 — 1½ Ton Chassis
$1305 — 1½ Ton Complete with body and cab
$1775 — 2½ Ton Chassis
$1850 — 2½ Ton Complete with body and cab

F. O. B. ALLENTOWN

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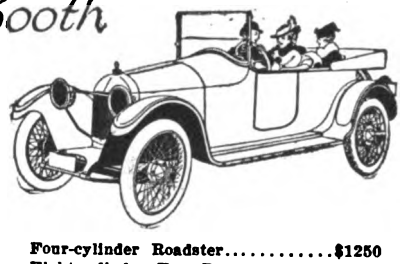


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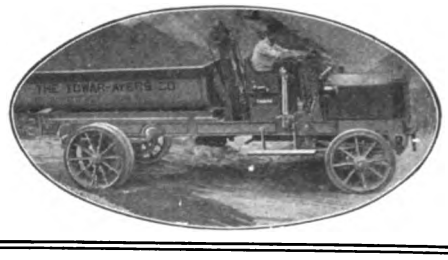
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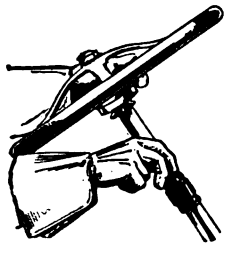
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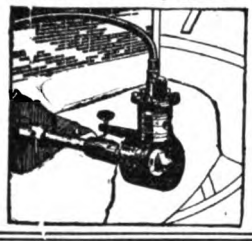
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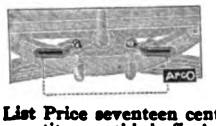
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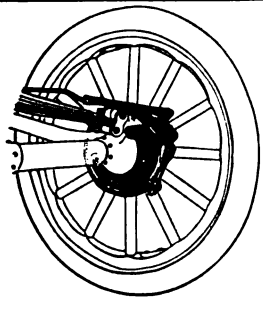
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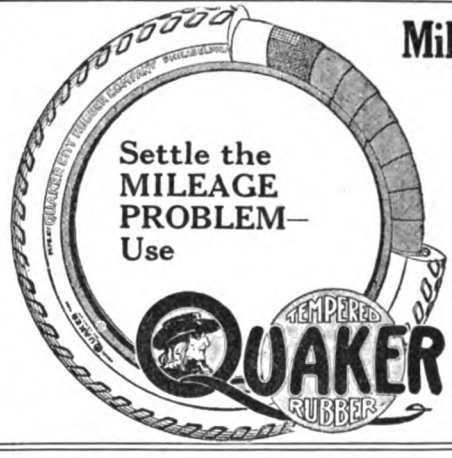
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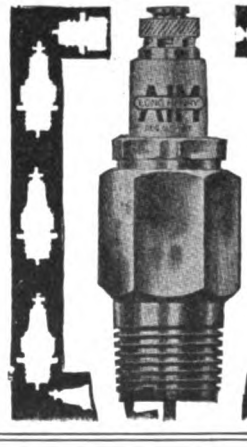
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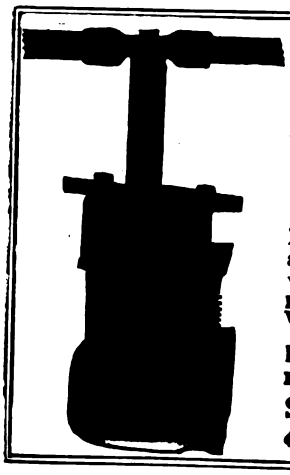
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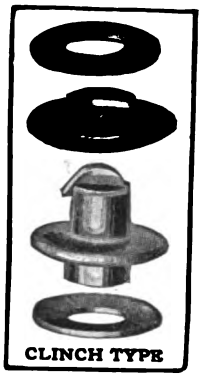
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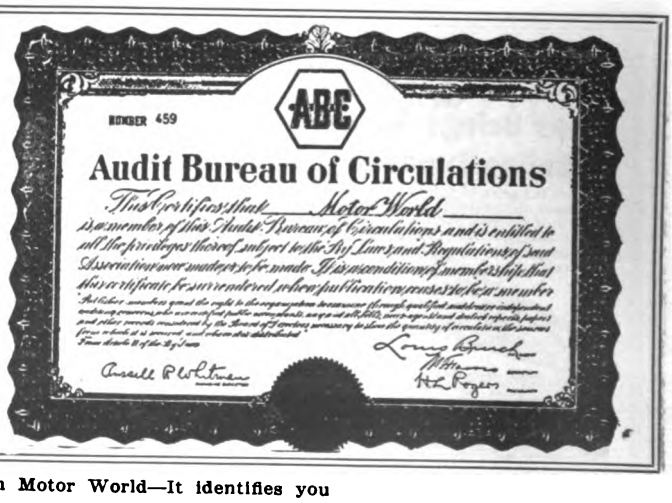
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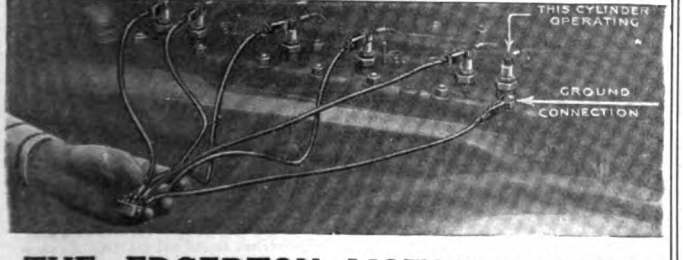
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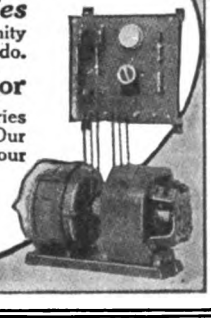
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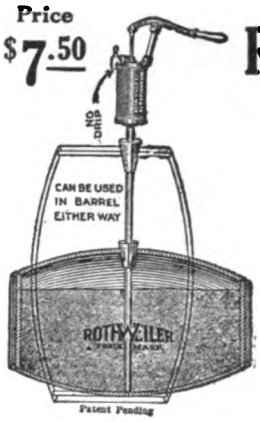
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Empties a Barrel or Drum Completely

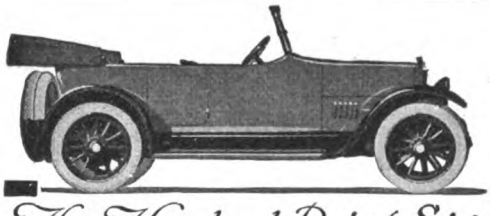
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Write for full information on the Selden Line

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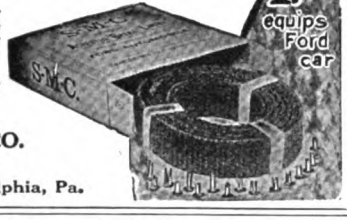
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When in danger—you'll be glad you did. For S-M-C on Brake lining means Safety Made Certain; always—all ways.

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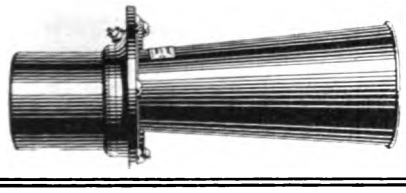
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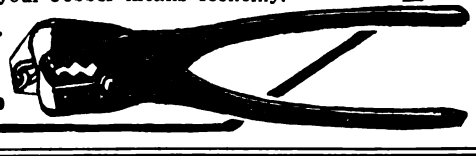
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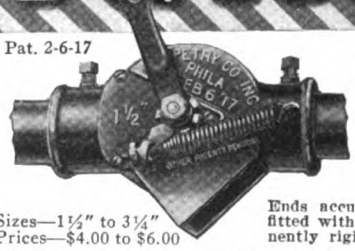
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Gases expelled to the rear through patented flared opening, prevents all back pressure. Lever has seven adjustments, which make easy installation. Spring is away from the body of Cut-out, does not absorb heat, has a simple tension adjustment and easy action, no strain on the exhaust pipe. Ends accurately machined for pipe size and fitted with set screw, which insures a permanently rigid installation.

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For Ford Cars

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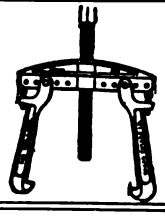
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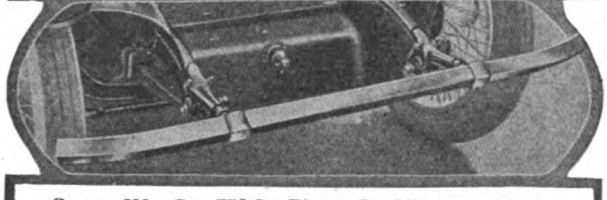
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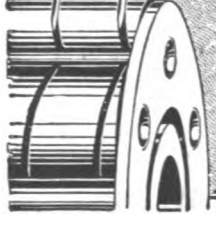
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We will sell at Unrestricted Auction, commencing on

Tuesday, December 4th, 1917, at 10:30 A. M.

and continuing until entire stock is disposed of the

REAL ESTATE, MACHINERY, EQUIPMENT, MERCHANDISE, TRUCKS AND FINISHED CARS

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Inventory Value Over $1,000,000

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$75,000 worth of the finest small Shop Tools.

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200,000 feet Fine Selected Lumber in all Hardwood.

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Buy your parts for all models of Pope Hartford cars from the only legitimate and authorized manufacturers—who own the original drawings, patterns, tools and fixtures and are making these parts daily. Don't buy and use second hand parts. They may be the cause of serious accidents and result in much additional expense in the long run.

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Packard 30, 1908 to 1912; Pierce, 4 and 6 cyl.; Cadillac, 1909 to 1914; Buick, Chalmers, Stoddard, Peerless and many others; Bosch magnetos; all types of slightly used magnetos at your price, guarantee them right; Gray & Davis starting and lighting motors, batteries, coils and carburetors. The Sunderman carburetors, brand new at $5. Your money's worth or your money back.

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In order to give effective service, it is necessary for us to carry a very large stock, as the demand is steadily increasing and cars are wearing out daily. This, together with the present shortage of raw materials, makes it an important factor that we give every order prompt and immediate attention.

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Bulletin No. 39

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Stoddard-Dayton
Cole, 4-50-1913; 6-1913; 30-1912; 40-1914
Marmon, 1909 to 1912
National 4, '10 to '13
Franklin, '05 to '11
Hupp, 20 & K
King, '11-'12-'13
Paige, 25-36—Empire 25
Standard 6—Metz
Stevens-Duryea
Mid and-Wayne-Welch
Selden-Speedwell
Stearns, 30 to 60
Kissel 4-6
Matheson 4-6
Amplex, all models
Pope Toledo—Winton 6
Oakland 30 & 40
Pope Hartford
Reo, 1908 to '13
Attabury
Alco
Glide-Warren
Locomobile-Knox
Interstate—Jackson
Abbott Detroit
Courier-Glide
Buick, 10-17-19-30
Moon 30-40-45 & C
Maxwell, all models to 13
Packard, 1905 to 1912
Pierce-Arrow, '07-'12
Hudson, 20, 33, 37, 6-54
Ohio-Regal
Bergdoll-Staver
Allen, '15 and '16
Atlas-Speedwell
Mitchell, 1908 to '14
Thomas, all models
Great Western—R. C. H.
Oldsmobile Special
Limited-Autocrat-Defender-42 and 43
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Overland 38, 43, 53
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Reo 1910—Empire 20
Buick 10-17-19-25
Maxwell Mascot
Parry—Rambler
Cole—30-40
Stutz—Imperial
Oakland 1910 & 35
Regals 1909 to 1914
Cadillac 1909 to 1913
Mitchell 1907 to 1913
Marmon 1909
Flanders 20—Warren 30
B. C. H.
Glide—Stoddard-Dayton
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Motor World Contract Work Department
239 West 39th Street NEW YORK

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The need for a spot light every dealer knows.

You know just what to say when the motorist comes in—

C S MFG. CO.

GIANT SEARCHLIGHT

Call it the "More-light" searchlight: that's something he will understand.

This handsome light may be described as follows:

"This light defies the severe conditions—it's just as good after months of service. Rust-resisting materials and specially designed parabolic reflector, silverplated over nickel, throws a brilliant shaft of light into the engine, into the gutter, on the sign board or house number—anywhere.

Any candle power lamp up to 60 can be properly focused because of the great depth of the reflector.

This light furnished with or without a mirror, which is detachable and may be located on the lamp to suit the driver.

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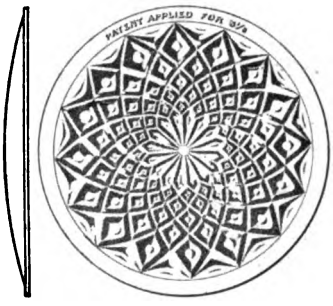
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ALWAYS in Focus
RUGGED
Won't Break

Simple, easily attached—and easily cleaned, as it is smooth outside—no turning in socket can spoil its efficiency.

The DIM-A-LIGHT LENS

A law-abiding headlight at a reasonable price, that will stand the vibration and hard knocks of motor car use without breaking.

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A headlight that is in focus all the time, in any position.

A simple, sensible concave lens that the average motorist who wants to comply with the law without going into the jewelry or optical business will buy on sight and recommend on service.

A real automobile lens.

PRICES

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9½, 9¼, 9½..... 1.75 per pair
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Our dealer proposition is a real money maker. Write for it today.

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I Save Money Every Day with → HARTON ← LOOSE LEAF GARAGE PLAN



GARAGE OWNERS You are losing money every day if you have not installed the HARTON LOOSE LEAF GARAGE SYSTEM. The HARTON SYSTEM is an automatic bookkeeper that cannot make mistakes and requires no salary

The HARTON SYSTEM turns losses into profits. Garage keepers write us telling how accurate and helpful this proven System is.



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This Page is the Customer's Bill
the one underneath is your copy

A FEW REASONS WHY

1—When you enter an account a bill is made for the customer at the same time.
2—Simplified method for recording and posting all items
3—Avoids the necessity of posting each item.
4—Requires the minimum amount of labor.
5—Pays for itself in a month.

Harton's Garage and Accounting Record is another new labor saving device we make. Ask about it.

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NAILING A LIE—COLD!!

We have read letters from Chalmers Distributors in which they have stated that competitors were saying to present owners of Chalmers cars and to prospective buyers, generally, that the manufacture of Chalmers cars would be discontinued.

There are thirty (30) automobile companies recognized by the general trade that manufacture and sell Touring Cars, and Roadsters at retail prices between $1,100. and $1,500. We haven't heard that all of these companies or any one of them were going to discontinue production or quit business. Why then should the Chalmers, with a better car than many others in this class of 30 manufacturers, stop production?

WE Make a prophecy, and will authorize our Distributors to back it up with $200,000. of our money; that, the Chalmers Company under the Maxwell Management, will stand ahead of 15 of these companies in production in 1918, and the Chalmers Company will stand ahead of 20 of these companies in production in 1919. This doesn't look as though we expected to discontinue making Chalmers cars.

The reason some people are trying to disturb the present Chalmers owners is to scare them about service so as to get a better "trade in" on his Chalmers.

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Walter E. Flanders

President, Chalmers & Maxwell Motor Companies.

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The difficulties of cold weather driving—heavy roads and all—are showing up power deficiencies they never realized existed when the going was good. They find themselves wasting fuel and oil, when both for reasons of economy and patriotic observance of the Government's request, conservation is most necessary.

Show them that what the motor needs is a set of

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Wonderfully efficient in stopping compression losses and reviving power. They make the motor active, responsive, dependable, eliminate waste of fuel and oil. Exceptionally strong, elastic and long wearing.

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That's the service you need to help you do prompt, efficient and satisfactory work for your trade. Use it to make a real clean-up this winter. You've got a chance the like of which never came around at this season before.

Send for FREE Book "To Have and To Hold Power." It will tell you all about the Genuine McQuay-Norris LEAK-PROOF Piston Ring. It will save you and your customers a good deal of money, time and trouble. Write Dept. K.

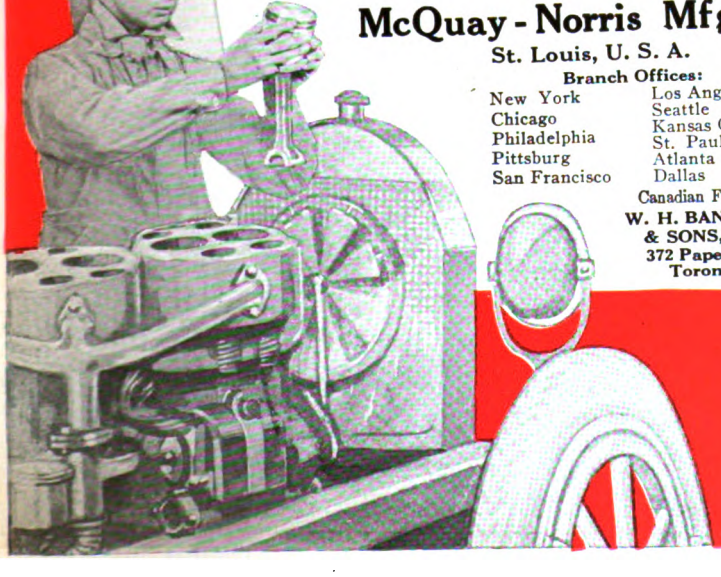
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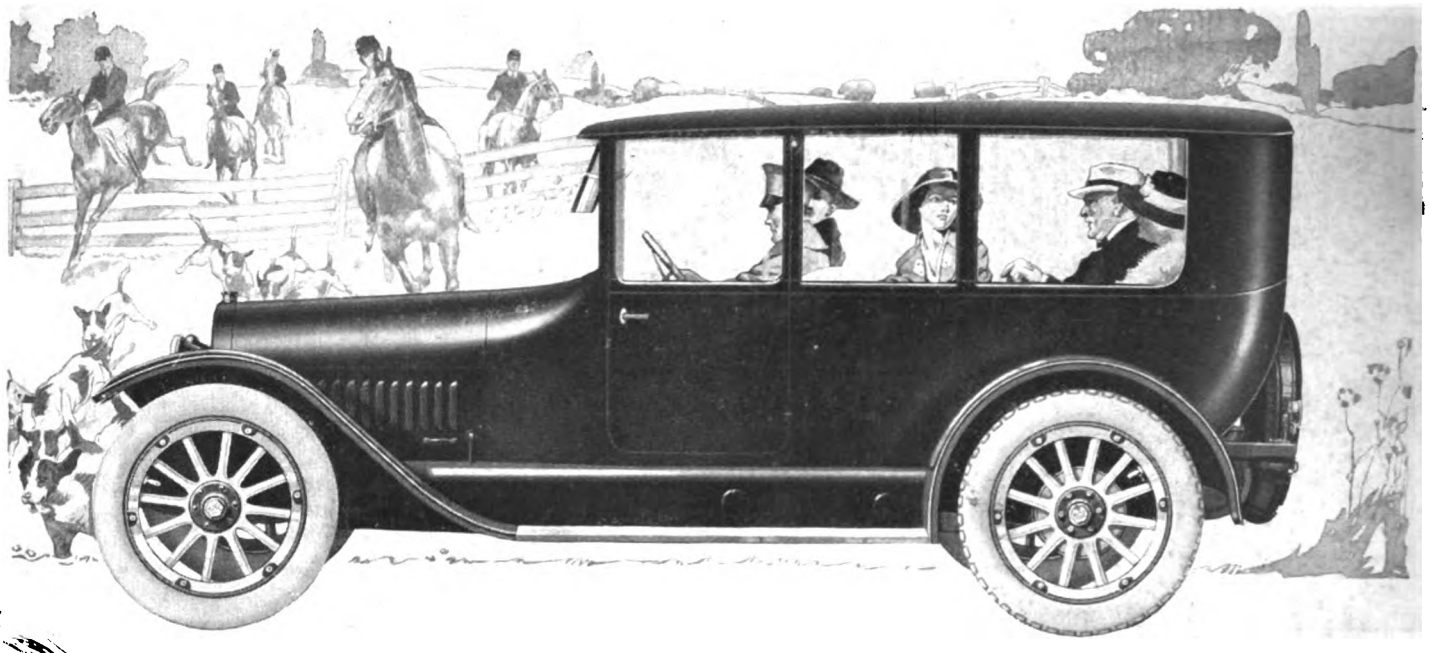
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$1525

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Also Town Car and Limousine.

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Mitchell SIXES

$1250

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Sedan, - - $1950 Coupe, - - $1850

All Prices f. o. b. Racine.

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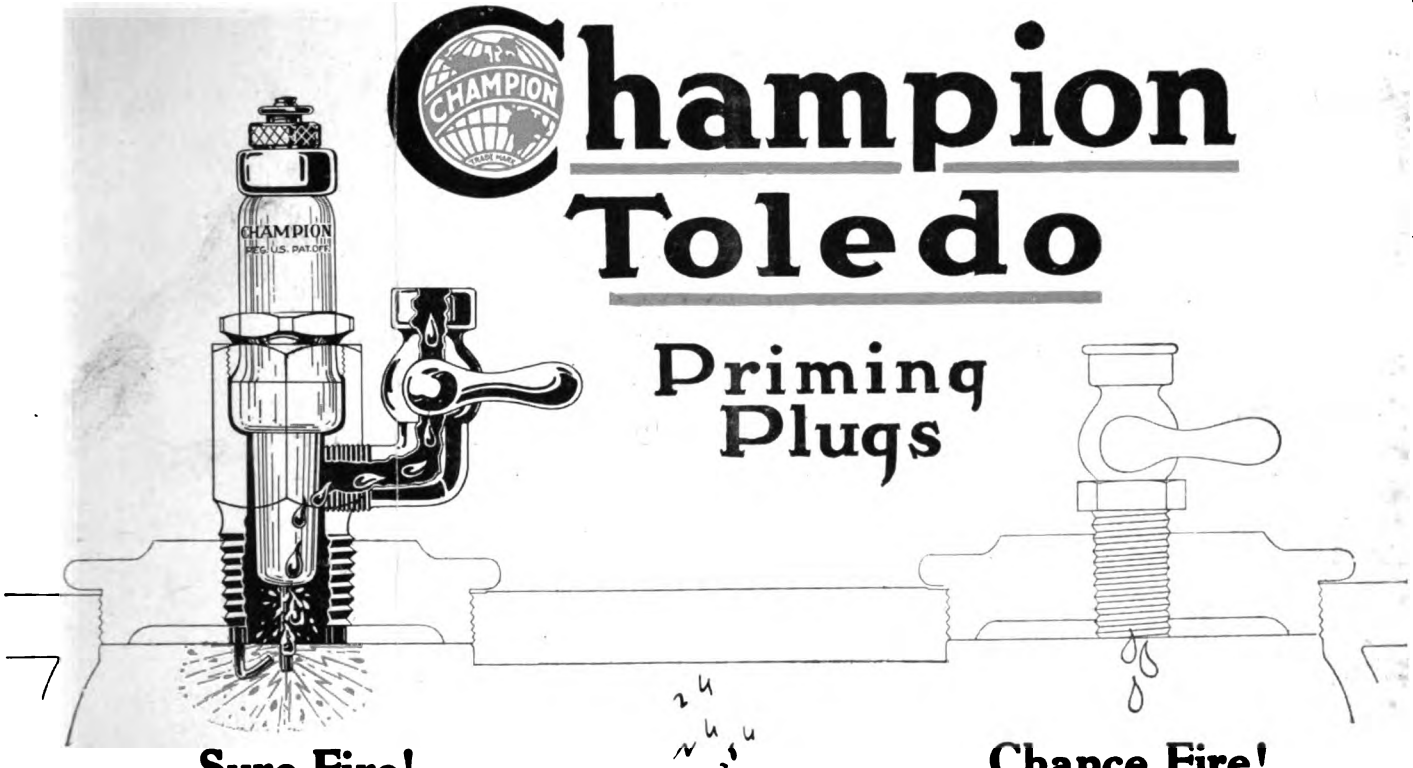
MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIII
No. 9

New York, November 28, 1917

Ten cents a copy
Two dollars a year

Champion
Toledo
Priming
Plugs



Sure Fire!

Chance Fire!

Sure Start For Cold Motors

To sure-fire a cold motor, you must have gas right at the sparking point of the spark plug.

The one sure way to get it there is with Champion Priming Plugs.

The gasoline trickles right down the core and drips from the electrode—right where the spark jumps.

Don't take out your plugs — don't run down your battery or wear yourself out with useless cranking.

Put the gas where it will sure-fire.

Priming cups are better than nothing — they give you chance-fire conditions.

They let the gas in at a point too far away from the spark plug.

If the gas vaporizes sufficiently to travel over to the spark, well and good.

If not, it will not explode.

And in a cold motor it does not readily vaporize.

The sure way is to put the gas at the sparking point through Champion Priming Plugs.

Then you have a sure start for a cold motor.

Champion Priming Plugs are the best cold weather friends the dealer and garage man have. They have proven satisfactory for years and are free from the troubles that make the unproven substitutes now coming on the market unsatisfactory to both those who sell and those who buy them.

Champion Spark Plug Company, Toledo, Ohio

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UTILITY Protected Foot Rail HEATER

You know as well as we do, that Reinhard Brothers Company, Inc., of Minneapolis, handle only the best—that they catalog and re-catalog only those items that sell, and make good.

Reinhard Brothers handled UTILITY Protected Heaters last year and **"found it a pleasure"** to do so. They are on our books again this year, because UTILITY Protected Heaters sell **—"away beyond their expectations."**

You should and can be on our books this year for the same good reason.

Watch for the Gold Plated UTILITY Protected Heater in the Anderson Six at the Shows.

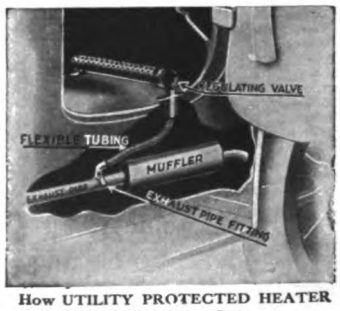


Write for unusually attractive literature for your own information, and to send to your UTILITY Protected Heater prospects. **It turns prospects to sales.**

The HILL PUMP VALVE COMPANY

Archer Ave. and Canal St., CHICAGO

Eastern Sales Office:
149 Church St., New York City



How UTILITY PROTECTED HEATER
Is Attached to the Exhaust

Price $15

UTILITY Jr. Protected Heater for Fords	$7.50
UTILITY Front Seat Heater, for Maxwells, Chevrolets, Fords and Front Seat Installations in all other cars	$10

Prices west of Rockies:

UTILITY Protected Heater	$16.00
UTILITY Front Seat Heater	10.75
UTILITY Jr. Heater	8.00

Keep the Driver Warm

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Premier

The Aluminum Six with Magnetic Gear Shift

All trade authorities agree that there will be a greater demand for closed cars this Fall and Winter than ever before.

The Premier Touring-Limousine Sedan can in a few moments be converted from a seven-passenger touring car into a sedan and from a sedan into a limousine. It has four doors—auxiliary seats that face forward—and is, we believe, freer from rattles than any other convertible car yet built.

Write for photographs and full specifications. We can make immediate deliveries.

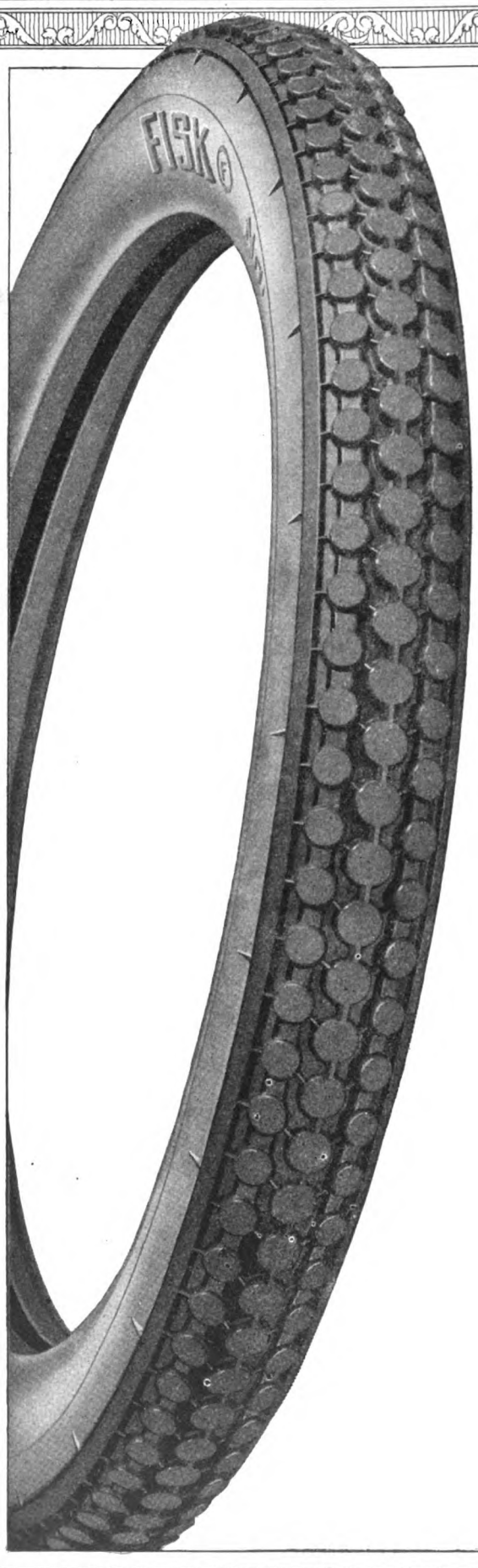
PREMIER MOTOR CORPORATION
Indianapolis, U. S. A.
Export Department—8-10 Bridge Street, New York

R. D. Scutt

GENERAL SALES MANAGER



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—a better tire.

—a real non-skid tire.

—a tire that gives the buyer the utmost satisfaction.

—a tire that represents greater dollar - for - dollar value——greater mileage.

—a tire that gives the dealer an equitable profit.

—a tire that is advertised liberally thruout the year.

Is there any wonder the Fisk dealer banks on

FISK
Non-Skids

Write Dept. 23 THE FISK RUBBER CO. of N. Y., Chicopee Falls, Mass., for the Fisk Dealer Proposition.



Time to Re-tire?
(Buy Fisk)

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
Charles B. Shanks, Manager

Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
H. F. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
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Its Record is Written in Accurate Miles

As true as it is scientifically and mechanically possible to make an instrument register and as sturdy and durable as faultless material and competent workmanship can make it, the

CORBIN-BROWN SPEEDOMETER

is the speedometer most suitably adapted to the requirements of rigorous, year-around service.

Because it is constructed upon the fundamental principle of centrifugal force it is absolutely unaffected by outside influences, such as heat, cold, altitude and electricity, and as a consequence its record remains accurate at all times and under all conditions.

Its hand is steady, its dial clear and easily read, in appearance it is neat, businesslike and compact. Investigate this instrument.

Write for Catalog

The Corbin Screw Corporation
THE AMERICAN HARDWARE CORPORATION, Successor
NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
Makers of Corbin Duplex Coaster Brakes for Bicycles

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIII New York, U. S. A., Wednesday, November 28, 1917 No. 9

War Ideas

YOU Need Them

Peace-time business has gone. The old business methods are no more. War-time ideas now prevail.

Every one must get new ideas.

Every time your business feels the effect of war you make a business change, don't you?

If the war hits you in one spot you try to recover in another.

Let's have YOUR ideas.

You must have some.

If you have found some means of meeting the labor problem, you have a NEW idea.

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If you have developed some new business to replace lost business, you have a NEW idea.

If you have found new ways of doing old things, you have a NEW idea.

Let's pool all these ideas.

Send them to Motor World. We'll run the pool for you and print all the ideas that are sent in. It will be a motor trade idea storehouse for everybody in the trade. This is not a time to hide ideas.

Get 'em out.

Let's have 'em.

Be unselfish. Be patriotic.

Every idea you put into the pool will help 22,000 other dealers and garagemen STAY IN BUSINESS.

Everyone is expected to do HIS part. Don't take the benefit of the OTHER man's idea and not put in any yourself. **That isn't fair.**

We'll all be helped.

Just see what it will mean to thousands of dealers and garagemen to have laid before them all the war-time business ideas of the whole United States and Canada.

Send your idea AT ONCE.

Fill out the blank opposite. There's a pencil in your pocket.

Fill In! Tear Out! Mail at Once!

War Questionnaire

I—LABOR

1. How many of your employees volunteered for military service?.....
   What were their positions in your employ?.....
2. How many were taken in the first draft?.....
   What were their positions?.....
3. How many more are eligible?.....
   What are their positions?.....
4. How have you filled the places of those who have gone?..
   .....
5. Are you using any female labor as a substitute?.....
   In what positions?.....
6. How do you plan to meet any labor shortage?.....

II—BUSINESS

1. Has your business increased in any departments?.....
   How much?.....What departments?.....
2. What per cent is your business below normal, if any?.....
3. What extra or new business activities have you taken on, such as tractors, trailers, farm lighting systems, trucks, extra machine-shop work, etc.?.....
   .....
4. Which have been most successful?.....
5. What extra or new activities do you plan to take on?.....
6. What changes in your business are you making or contemplating to meet changing conditions?.....

The address to which this should be mailed is:

MOTOR WORLD
Editorial Department
239 West 39th Street, New York

Your name .....
Company .....
City .....

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Helping the Government

THE motor-car industry has expressed certain thoughts regarding the proposed curtailment of production that have not been in complete harmony with the plans of the War Industries Board as originally proposed.

These same expressions have appeared in MOTOR WORLD, and comment on the same situation appears in MOTOR WORLD this week.

This editorial is for the purpose of setting forth the situation in its true light.

Many factors enter into the situation. One is that the industry has already curtailed itself without any curtailment order. Further curtailment probably will be necessary, but until it is necessary as shown by facts any restrictive moves should be made very cautiously.

The assertion by this industry that the War Board's plan was not the best is construed by some people as "fighting the government."

They maintain that the War Board is part of the government—which is correct. They also assert that unless the industry submits to the rulings of the War Board the industry is unpatriotic. *This is not a fact.*

Let us ask these accusers: "Was Bradley, MOTOR WORLD'S correspondent in the war zone in Europe, unpatriotic when he told of the inefficiency that came from about three dozen different types of airplane engines?" He was, in a way, opposing the work of the French government.

Perhaps we may answer this question for everyone by saying that Bradley's suggestion was taken up by America and resulted in the famed Liberty airplane engine, which will permit our enormous manufacturing facilities to concentrate with highest efficiency on ONE and not a great variety of types.

Government Thanks Bradley

To-day America thanks Bradley because he didn't agree with the Allies in their war tactics and was man enough to say so.

Bradley's suggestion also furnished the germ from which have come our new Liberty trucks, which all of our country's industries will manufacture on the most efficient basis, all making ONE product, not many.

Many other analogies might be drawn. History is full of men who are loved and famous because they saved critical situations with helpful criticism.

Once England said Lord Northcliffe was unpatriotic, and there was talk of suppressing his newspapers. To-day he is one of England's heroes, because he brought order and efficiency into the muddled munitions situation. *Without this criticism the war might have been lost.*

America has conditions all its own, yet the War Board seemed to have in mind the treatment of the passenger car industry the same as it was treated in England—where conditions are different. To-day thousands of people in England see the mistake of suppressing that big industry, and *steps are being taken to repair the damage if possible.*

We must bear in mind that America is to carry the load of the war. During the past three years the other countries have shut down whole industries and have turned to America for whatever they couldn't make themselves. America has no place to turn. It is the last source. What we don't make won't be made. What we don't do won't be done. We have no big neighbor to help us out. *We are the end of the line.*

National Life Must Be Conserved

To keep America efficient her industries CANNOT be crippled. Our national life must be conserved. Shrunken, shriveled industries mean a weakened civil life, an unprosperous people that cannot buy bonds, that has no spirit, that is licked before it starts.

The prize-fighter hits with his arms, but he trains his whole body. He develops every inch of himself to the utmost.

Where would we be if we dropped everything and turned only to the making of shells and guns? Our factory workers would revel in money derived from the government. The government would get its money from bonds.

But what about the big common people, the dealers, the store workers, the farmers, the railroad men in non-munitions sections and all those who could not work in factories? They are the bond buyers, the ones who support the munitions workers. They must not be weakened. They are the foundation of the whole war.

The great struggle will be won by the common people, some of whom may never even see a soldier or hear a gun.

If the war could be ended in six months provided everyone did nothing but war work, that would be the thing to do, but if we are to fight for perhaps five years longer *we must keep America alive and efficient from top to bottom.*

Must Use Other Methods

In order that this may be done we must pursue a different line from that which the War Industries Board indicated it would take. This board, which MUST HAVE munitions, began its work by RESTRICTING the motor car industry. Instead of compelling industries to EXPAND so they would be bigger and able to do more work, including ALL munitions demands, the board began by CUTTING DOWN. It hit indirectly at the civic life of America, at the dealers, garage men, salesmen and their countless dependents.

This was wrong.

First — It was an economic mistake. All industries, steel, coal, transportation, and all manufacturing plants should be speeded up to meet the bigger demand. America should be made a busier mill than ever. In this way it can support the war with materials, with money and with SPIRIT.

War Needs Come First, But—

Second—It was not necessary. The War Industries Board should first demand that munitions be made, and then if the industry can't take care of its other production there must be a curtailment to meet the situation. *War needs come first, but other things should be given a chance.* Also, investigation reveals that the shortage of steel and coal is not sufficient to justify the board's first step.

In this situation is it unpatriotic to express one's views and to recommend changes that seem to be the best for our winning of the war?

We believe we would be intensely unpatriotic if we dumbly submitted when we believed our country was starting on its way to disaster.

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"Over There"

Your Country Needs You

Mail This Blank

This is the enlistment blank, the key to one of the greatest schools on earth, the key to opportunity, to health, experience, training, education, travel and adventure. Turn the key—PEN and INK will do it—fill it out and mail it in to-day—and open the door to life's great offering. You serve your country, work for Democracy, do your duty, and, in addition, gain chances few men on earth can hope for.

Volunteer Department, 119 D Street, N. E., Washington, D. C.

I desire to enlist, as a skilled workman, in the Aviation Section of the Signal Corps.

Name .....

Address .....

.....

At present employed with.....

.....

Trade.....No. of years in trade.....

If you will be called by draft, when?.....

In a few days every dealer and repairman in the United States will receive from the Government Airplane Service a booklet the cover of which is illustrated on the opposite page. The booklet will tell you all about the airplane service in France, for which America needs 45,000 motor car mechanics, chauffeurs, etc., at once.

The booklet should be put into the hands of service men, chauffeurs and other workers. The country needs them.

This is a big opportunity for you, if you are a skilled mechanic, of the right age and other qualifications. It is an opportunity for you to serve your country in the form of work you like best and can do best. It offers big possibilities. The possibilities extend even into the after-the-war period.

When this book comes give it serious consideration. It may mean more to you than anything else that may happen in any of the other years of your life.

If you are white and physically fit you may, if you so desire, fill in the application blank at the top of this page NOW and send it to the address at the top of the blank.

Already a number of Motor World readers have made application. They have taken the first step on their way "over there."

Go with them!

The Aviation Section of the Signal Corps needs thousands of men from repairshops and service stations.

Mail the blank NOW. You have often wondered what your part in this big war would be.

The path lies open.

Help Correct Public's Opinion of YOUR Business

THE mass of the public and the government still class the motor car as a non-essential, and, as such, it is looked at askance by officials. They class it with perfumes and scented soap when they look about them for non-essential industries that can be suppressed for the purpose of making war materials.

Aside from the fact that there is coal and steel and factory capacity enough to make both cars and munitions and no necessity for excessive curtailment, there is a WRONG public opinion which must be changed. Unless it is changed the motor car industry is going to have harder sledding than it is having now.

If this industry should be suppressed by uninformed men it would be a disaster to the nation—for many reasons. Without citing here all those reasons, let it be stated that what contributes to the possibilities is this wrong public and official opinion.

Therefore, explain the case to your newspapers. Ask them to support you. You must SELL them on the case first. Then, we are sure, they'll gladly co-operate with you.

The other day a Motor World man was visiting with a newspaper editor. This newspaper man, after classing cars as luxuries and the industry as non-essential, admitted that his mind was considerably influenced by the number of cars on Fifth Avenue and Broadway and the people he knows who do use cars largely for pleasure purposes. But he didn't know that 80 per cent of the cars are owned by farmers. He didn't know that Maxwell investigated among 200,000 car owners and found 80 per cent used for business purposes, in whole or in part. He had that same damaging, mistaken opinion that right now is the most serious factor with which the industry has to contend.

Try to correct it in YOUR town. If EVERY dealer does this the situation can be rectified. Let the trade in your town send a committee representing the whole trade to call on the newspaper publishers. Make sure you see men of authority and responsibility. Actually sell the dominating man on each newspaper to the essential character of YOUR business. Ask him if he won't kindly cease to class you with perfumeries and tar soap. Ask him to print the story that is right below on this page.

Also get reprints of the clipping and inclose it with the mail that goes to your prospects. And send Motor World a clipping.

Ask Your Newspaper to Print This Story

FURTHER talk in automobile circles of a cutting down of the output of factories is having a bad effect among the dealers and garagemen of this city. The publication frequently of contemplated action by the War Industries Board is having a disturbing effect that is regarded as not beneficial.

The dealers believe it is not necessary that factory outputs be cut down beyond certain very reasonable limits and regret that the public has been given the impression that the entire car industry might be suppressed as a non-essential.

One factor in the situation is considered by the dealers to be the comparison by officials of the situations here and in England, but without a sufficient analysis of the two situations.

(*Continued on page* 42)

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See That Your Men Get This Booklet

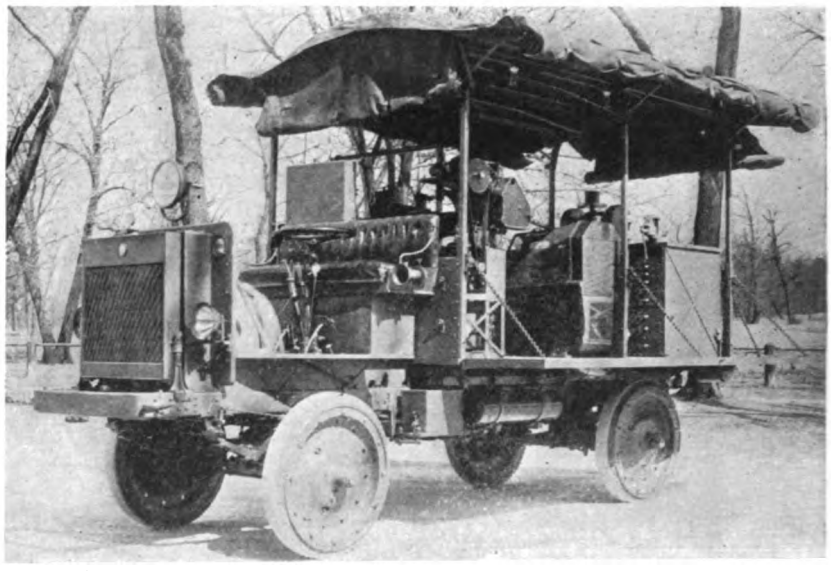
Read "Over There" on the opposite page.



The new selective draft regulations prevent any man from 21 to 31 years old enlisting after December 15th. In order to complete your enlistment (be examined, accepted and take the oath), you should positively report to any recruiting officer before December 13th.

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Here is one of the armored cars that the Ordnance Department will use and a supply truck which has cabinets for small parts used in making repairs of all sorts, even on clothing and saddles for which sewing machines are carried

What the Ordnance Department Offers a Young Man

EVERY day somebody says "I have made a serious mistake in my life. I did not develop my mechanical ability." And someone else says "I have had no opportunity. I would be a success if I knew more about my job." There is nothing more pitiful than a wasted existence, a life working at the wrong job, devoting energy and effort to needless obstacles, ending usually in sorrow and trouble.

To-day there is a CHANCE for EVERY man, young and middle-aged, with mechanical ability and experience, to find his place, to develop his ability, to increase his knowledge—TO INSURE FOR HIMSELF A POSITION FOR WHICH HE IS FITTED IN THIS WAR FOR DEMOCRACY. And the opportunity includes places for those men who crave excitement as well as for those seeking travel, opportunity, experience and knowledge without adventure.

Skilled Mechanics Needed

The Ordnance Department of the National Army needs skilled and partly skilled mechanics. It must have 30,000 men able to tear down motors, drive trucks, vulcanize tires, grind valves and do any of the work performed in the garage, tire plant and repair shop.

To these men are offered opportunities few civilians can ever hope to enjoy. The war is developing the motor truck and the tractor. After the war these will be used in proportions now beyond the imagination.

Everywhere there will be factories manufacturing trucks and tractors. Everywhere there will be freight and passengers hauled by trucks and tractors. Foremen, drivers, executives—every sort of worker will be in demand for these new fields.

And you may be assured that those men working in this fight for democracy, learning now the mechanical and technical details of trucks and tractors, will be the favored men when these industries commence their commercial strides.

Here is YOUR OPPORTUNITY—your chance to help your country and to help yourself. The Ordnance Department is planning:

A base repair depot in France, costing many mlilions, employing fifteen thousand workers, completely equipped, as efficient as any factory, where mechanics will repair trucks, tractors, motor carriages, tires, carbureters, etc.

Mobile repairshops, carrying small, complete and efficient repairshops aboard huge motor trucks to make minor repairs on the field and near the trenches.

Motor truck convoys, including supply trucks, artillery trucks and the mobile repairshops.

The huge base repair depots, employing about 15,000 men, will overhaul 150 cars per day, affording ample work, insuring every man opportunity to improve his experience and knowledge.

The mobile repairshops, operating with the truck convoys, will include a number of trucks, comprising mobile repairshops, equipment repair trucks, general supply trucks and artillery supply trucks.

All men enlisting in the service will be placed in uniform, given the minimum of military drill to insure discipline, sent to schools located in the United States at Rock Island, Peoria, Clintonville, Wisconsin and elsewhere for several months and then sent to France, assigned to the tests for which they will be the best fitted by experience and training.

The convoys of trucks will carry:

(a) Commissioned officers.
(b) Many non-commissioned officers.
(c) A few privates.

Which illustrates the vast opportunities for becoming an officer.

Each convoy unit will carry its own food, beds and cook, insuring comfort. Each man will carry side arms, wear regulation army uniforms, eat food provided free by the Government, insuring an opportunity to save his wages.

Clothing and Food Supplied

You are certain of your clothing, food and bed, whether you work at the supply base depot or on the truck units. You are certain of experience and education at either job. You are most certain of adventure, which will appeal to some men on the truck convoy which, in the course of their duties, will go up to the trenches to repair tractors and gun carriages.

The Ordnance Corps is that part of the army charged with the supply, maintenance and repair of cannon and artillery vehicles and equipment, small arms, motor trucks, motorcycles and tractors. IT IS THE ARMY BEHIND THE ARMY—the service of the rear.

All applicants for enlistment must be between 18 and 40 years, able to pass a physical examination, with no absolute dependents and able to read, write and speak English. Pay ranges from $30 to $61.20 per month.

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The Kind of Men Wanted

Figures in parentheses ( ) refer to key at the bottom

(1) Accountants.
(2) Auto experts.
(5) Auto-truck drivers.
(4) Auto-repair men.
(4) Armature winders.
(4) Autogenous welders.
(5) Assemblers (shell and case).
(5) Automatic screw machine operators.
(6) Bakers.
(6) Butchers.
(5) Blacksmiths.
(5) Barbers.
(5) Blue printers.
(5) Bookbinders.
(5) Brush makers.
(4) Blacksmiths' helpers.
(4) Boiler makers.
(4) Barrel and cask makers.
(5) Belt men.
(5) Brick and tile men.
(5) Brass melters.
(1) Chemist.
(2), (3), (5) Clerks and bookkeepers.
(6) Confectioners.
(3) Carpenters.
(4) Carriage trimmers.
(4) Carriage painters.
(6) Cooks.
(4) Core makers.
(1), (2) Civil engineers.
(4) Cupola tenders.
(2), (3), (4) Draftsmen.
(4) Drop forgers.
(4) Dynamo tenders.
(5) Electric welders.
(4) Electricians.
(4) Electric linemen.
(1) Electrical engineers.
(5) Electrotypers.
(5) Firemen, stationary.
(5) Firemen, locomotive.
Firemen, helpers, stationary.
(1) Foremen, machine shop.
(1) Foremen, plumbers.
(1) Freight agents.
(5) Glaziers.
(4) Gunmakers (rifle and pistol).
(4) Gunmakers (machine).
(4) Grinders (tubes, tools, etc.).
(5) Hydraulic-press operators.
(5) Horseshoers.
(4) Harness makers.
(3) Inspectors, cartridge case.
(3) Inspectors, cloth.
(3) Inspectors, leather.
(3) Inspectors, boiler.
(3) Inspectors, machinery.
(5) Ice makers.
(2) Inspectors, special.
(4) Jewelry repair men.
(2) Locomotive engineers.
(5) Laundrymen, disinfecting, exp.
(5) Locksmiths.
(4) Leather cutters.
Laborers, storehouse, exp.
(5) Laborers, high grade.
Laborers.
(3) Machinists.
(1) Mill foreman, wood.
(3) Millwrights.
(5) Machine woodworkers.
(5) Moving-picture operators.
(4) Molders, brass.
(4) Molders, iron.
(5) Niter bluers.
(4) Nickel platers.
Oilers.
(2) Optical instrument repair men.
(5) Photographers.
(4) Polishers, steel.
(5) Pump engineers.
(4) Pattern makers.
(1) Printing foremen.
(5) Press feeders.
(1) Paint-shop foremen.
(4) Painters.
(5) Paint mixers.
(1) Punch-press foremen.
(5) Punch-press operators.
(5) Punch-press men (cart'd exp.)
(4) Plumbers. Plumbers' helpers.
(5) Packers.
(5) Riggers.
(5) Sign painters.
(5) Switchmen.
(4), (5) Stenographers.
(2) Storekeepers.
(4) Solderers.
(4) Sheet-metal workers.
(3), (5) Sheet-metal straighteners.
(5) Sewing-machine operators (leather).
(5) Sewing-machine operators (cloth).
(5) Shoe repair men.
(4) Steam fitters.
(3) Stationary engineers.
(5) Stationary firemen.
Stationary firemen's helpers.
(5) Typists.
(5) Typesetters.
Teamsters.
(4) Tinsmiths.
(5) Tent and awning makers.
(4) Targeters.
(3) Toolmakers.
(5) Tailors.
(5) Telegraphers.
(4) Vulcanizers.
(4) Wheelwrights.
(2) Yardmasters.
(4) Masons (brick and stone).

(1) Men proficient in these trades, if found qualified at place of service, may attain rank of ordnance sergeant.
(2) May attain rank of sergeant first class.
(3) May attain rank of sergeant or sergeant first class.
(4) May attain rank of corporal or sergeant.
(5) May attain rank of first class private or corporal.
(6) Will be rated as cooks.

NOTE.—Original enlistment is required as private, but special qualifications or courses of training quickly lead to higher grades. Privates first class and privates may become proficient in trades indicated in higher grades and then be in line for promotion accordingly.

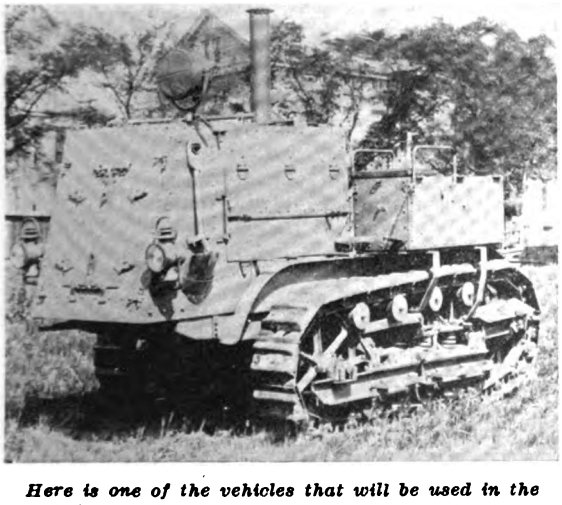
Pay Chart

Lower figures show pay per month when service is in United States, Hawaii, Porto Rico, or Canal Zone. Higher figures when service is in Alaska, China, Europe, or the Philippines.

Ordnance sergt.	Sergt. first class.	Sergt.	Corporal.	Cook.	Private. first class.	Private.
$51	$51	$44	$38	$38	$33	$30
to	to	to	to	to	to	to
$61.20	$61.20	$52.80	$45.60	$45.60	$39.60	$36

In addition to regular pay men receive free quarters, rations, clothing, bedding, medical attendance, dental attendance, etc.

Also, under Act of Congress approved Oct. 6, 1917, there will be certain allowances made to dependent families of members of the Enlisted Ordnance Corps, National Army, varying from $15 to $30 per month. (This amount is based upon number of children and other dependents.)



Here is one of the vehicles that will be used in the Ordnance Department, a creeper type tractor

APPLICATION FOR ENLISTMENT
Ordnance Department, National Army

(Address).....
....., 191

Chief of Ordnance, U. S. Army,
War Department,
Washington, D. C.

Sir: I respectfully request permission to enlist in the Ordnance Department, National Army, and hereby certify that the following statements are correct and are in my own handwriting:

Birthplace and date of birth.....
Nativity and present residence of parents.....
.....
Height..... Weight.....
Have you received a notice to appear for examination before a local draft board?.....
Are you married? .....
Have you attended college? If so, how long.....
Are you a member of the National Guard of any State or Territory or in Government service in a civil service capacity?
.....
Have you ever served in the United States Army or in any foreign army? If so, state particulars.....
.....
For what occupation in the Ordnance Department, National Army, do you desire to enlist?.....
Experience .....
.....
Are you now employed on work being done for the Government, if so, what kind?.....

NOTICE.—No action can be taken on your application if the statement below is not signed:

I hereby certify that there is no one entirely dependent upon my labor for support, who, in my absence, will be left without reasonable support after duly taking into consideration soldier's wage and support available from relatives, or dependent to such an extent that circumstances might arise which would result in my application for a discharge because of dependent relatives.

(Signature of Applicant).....

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Up the Long Road of Dreams

By Ray W. Sherman

WHEN there was a meeting of the association scheduled Tommy Trumbull and Reilly always ate early and went up to the club rooms, where they sat in front of the big fireplace and smoked long fat cigars until the gang came in. They were both fireplace nuts.

"See any shows?" asked Tom of Reilly, who had just taken a fly to New York.

"Yes, one." Reilly stretched himself out as long in his chair as his short form would stretch. "I saw Fred Stone, who used to play with Montgomery. You've seen them. Stone was as good as ever, but the show wasn't much—mostly Stone. Lots of funny stuff and a bit of kid atmosphere worked in. The kids did a Peter-Panny stunt of going down the 'long road of dreams' to Candy Land. It was pretty good."

Tommy got up and poked the fire.

"I laughed myself sick a couple of times and then I had a sentimental spell when they pulled this dream road stuff. It made me think how real it all is."

"What?" was Tommy's unsentimental retort as he rattled the poker.

"Oh," mused Reilly, "dreams and ideals and all that sort of thing. You know, if we don't dream we don't have anywhere to go, it seems to me. But the dream road I have always imagined is one that leads up—and not down. Folks can say all they want to about daydreaming and sky-gazing, but some of the greatest ideas that have ever been worked out flashed through day dreams, and some of the most successful men have been those who spent a lot of time that other folks might consider wasted.

"Didn't you ever dream and dream and dream of doing a certain thing, or going somewhere? Didn't you see the place a thousand times in your imagination, and didn't you see yourself time and again visiting this spot and that until the trip you hoped to take became more real than the trip itself when you took it.

"And then some day you got the chance to go to the place about which you had dreamed. You went in great expectancy and anticipation. But you never wondered for a minute what you were going to do or see. You had figured it out in your mind so many times. You went through the trip just as you had always dreamed you would—and without a change in your dream program. It was just as though the YOU of your dreams was with you all the time, showing you where to go and leading you on the way.

"I remember the first time I went across Lake Erie from Buffalo to Detroit. I had always dreamed that I would watch Buffalo harbor fade from view, that when it became night—and I hoped it would be a bit rough—I would stand up in the front end and watch the boat plow through the night. Then I had figured I would get up early, eat breakfast and watch the boat slip up the Detroit river in the sunlight. And when I did get a chance I did just those very things without a hitch or halt—and had a fine time all alone.

"It's just like that in business. If we don't dream we don't make the trip to best advantage when we get the chance. And if we don't dream maybe we don't recognize the chance when it comes. The scenery may all be so unfamiliar that we fail to recognize the road signs of opportunity.

"It's just like that in business. If we don't dream we don't make the trip to best advantage when we get the chance. And if we don't dream maybe we don't recognize the chance when it comes. The scenery may all be so unfamiliar that we fail to recognize the road signs of opportunity."—*Reilly.*

"I remember well when I was a young fellow working as a salesman, I dreamed of the time when I could be something more than a salesman. I figured that the next best step for me was to be a dealer. I also dreamed that the car I would want was one that sold for between a thousand and fifteen hundred dollars.

"With a car like that I imagined myself in an attractive salesroom. I saw the class of trade I could get and the very way in which I would go at it. I knew I would have to start small and grow big. That was all part of my dream. Then, one day I heard of the Sennett opening in Callawassa, and I went down there and told Jim the Sales Manager that I thought I could be a credit to the Sennett people in Callawassa. Maybe some people might think I landed the agency by good salesmanship. But I didn't. I merely translated into modern every-day talk the story of my future as I had gone over it a thousand times in dreams.

"When I got the agency I operated as I had imagined I would. Most of my plans worked out well. I got a little more territory now and then. To-day I am the biggest man on the Sennett dealer roll and I'm making money—just as I had dreamed it for years.

"I imagine that Jim the Sales Manager must have dreamed in much the same way, for he came up from the service end of the business. I can't conceive how a service man can become a sales manager unless he is a dreamer and I can't imagine a dreamer service man not climbing if he follows the road signs when he comes to them.

"If a service man begins to dream of himself as a salesman he naturally begins to study selling. He becomes a salesman in his own mind, and then some day he sees the chance. He takes it and every one is surprised at his success in the new field. But there is nothing remarkable about it—he is merely doing in reality what he has done a thousand times in his dreams.

"An office boy may dream that he will become mail clerk, then something else and something else until he gets a chance at something good. If he works as hard as he dreams he will get there.

"A cub reporter sees himself as city editor. He does the job over and over again. Finally he gets a chance at the desk. He makes good. Why? Because he isn't as new to the work as he was thought to be. He had done it many times when no one knew.

"Salesmen can become dealers. Dealers can make more money. Garagemen can achieve success. We all can climb if we go over the road before we get to it. I'll bet Henry Ford is a great dreamer. Just think of it! One model—good car—low price—a car for the millions—and there you are! And he's still dreaming.

"Take our present situation—the war. We're all coming into new conditions. We must have new ideas, new thoughts, new plans. The old stuff doesn't go any more. If we don't look into the future the things that are coming will be a shock when we hit them. But if we dream about it a bit we are all ready when the hard time comes.

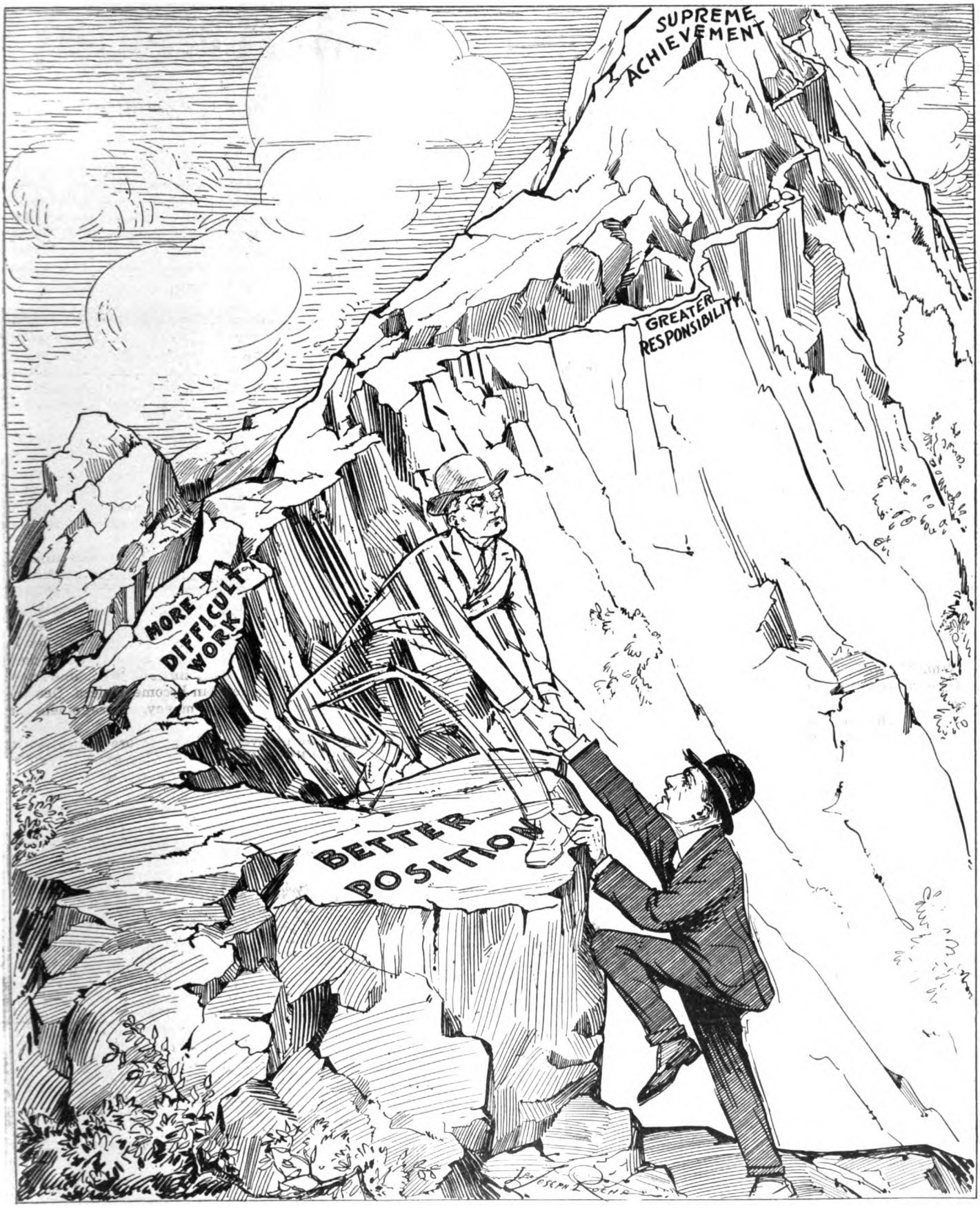
"Some of the young men have gone from our shop. More will go. If we don't dream about the future we are going to be embarrassed when the other men go. It may leave us in a hole.

"Our car sales are off. They may be off still more. But just sit down and dream a bit about a business with low car sales and imagine what you will do if things get in a bad state. There is always a way out. A good cigar and a fireplace fire have brought success to many a man.

"If you dream of the way you want to go, Tommy, there seems to be a dream man there, helping you along all the way. He has gone that way many many times—and he sticks right with you and tells you how."

Whereupon Tommy got up and poked the fire some more.

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"If you dream of the way you want to go, Tommy, there seems to be a dream man there, helping you along all the way. He has gone that way many times — he sticks right with you and tells you how."—REILLY.

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Make Your Window Talk

Make It Tell a Story as Well as Show the Goods—Use the Displays on These Four Pages

ANY man with half an eye for balance and arrangement can build a fairly attractive automobile accessory window display.

But to pack a real selling punch—to do more than merely *display* the goods, your window should tell a story.

A *display* window, one that merely shows the goods, may, because of its arrangement or the size and number of the articles featured, attract attention for a moment. But a selling window, one that shouts out, "You need this article. Here's why. Buy it!" is the kind that compels action. It brings trade *inside* the store and rings up sales on your cash register.

How about your windows? Do they display the goods—or sell them?

Here are eight automobile lubricating oil windows. Each of them tells a story on the importance of correct lubrication. They show the relationship of oil to the economical maintenance of an automobile. They carry a real message to the motorists. They tie you and your place of business up with the national advertising campaign of the oil manufacturer.

They hit the motorist in his most vulnerable spot—the pocketbook.

They are the kind that attract attention, compel action, and produce PROFIT.

There is nothing complex, difficult or costly about these displays. No expensive stands or paraphernalia are necessary.

They may be used in windows with or without a background. If there is no background to your window you can use an ordinary four-fold plain panel screen placed in the rear of the center of the displays on which some of the larger cards may be tacked.

These displays all have sufficient elasticity so that they can be adapted to almost any size window by either grouping the cans closer together or else by expanding the groups a trifle.

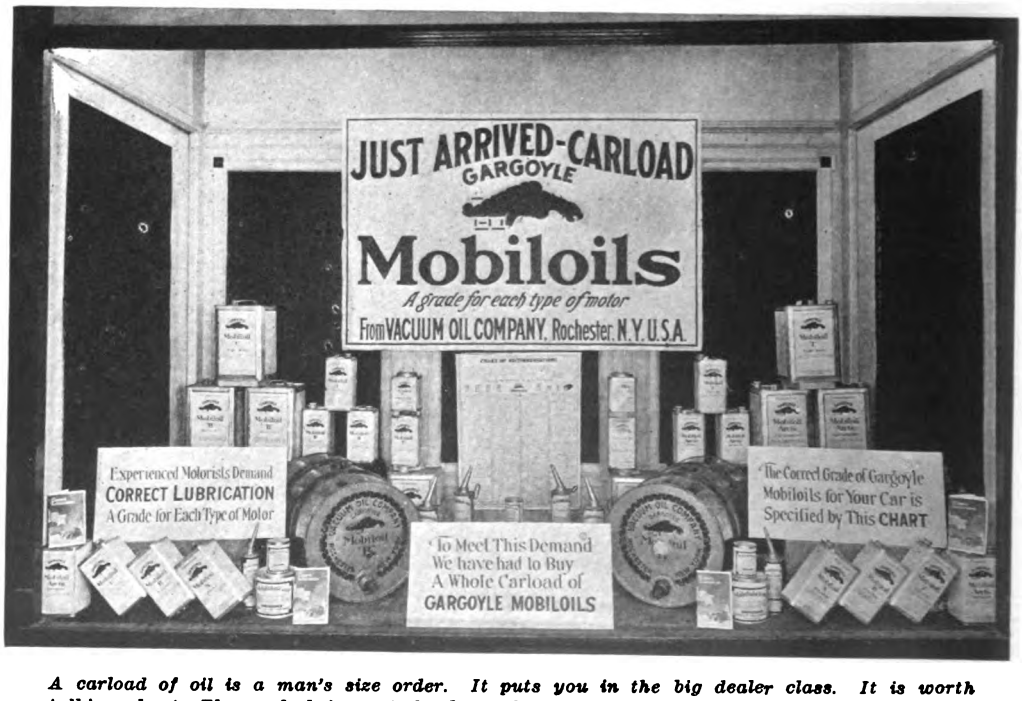
Stiff cardboard for the signs and posters can be bought at any stationery store for a few cents a sheet. It is not necessary to have the signs lettered by a professional sign painter. You can readily make them yourself.

Don't hesitate because you may not be experienced in card writing. Get a bottle of black ink and a small flat brush or use a heavy black crayon. Line lightly the top and bottom lines of letters, space approximately with light pencil lines and then go ahead and letter.

(*Continued on page* 42)



This window features the complete lubrication of a popular car. You can substitute the name of any car or cars that may be more popular in your vicinity or for which you are agent. However, the correct oils for the car you happen to feature should be specified



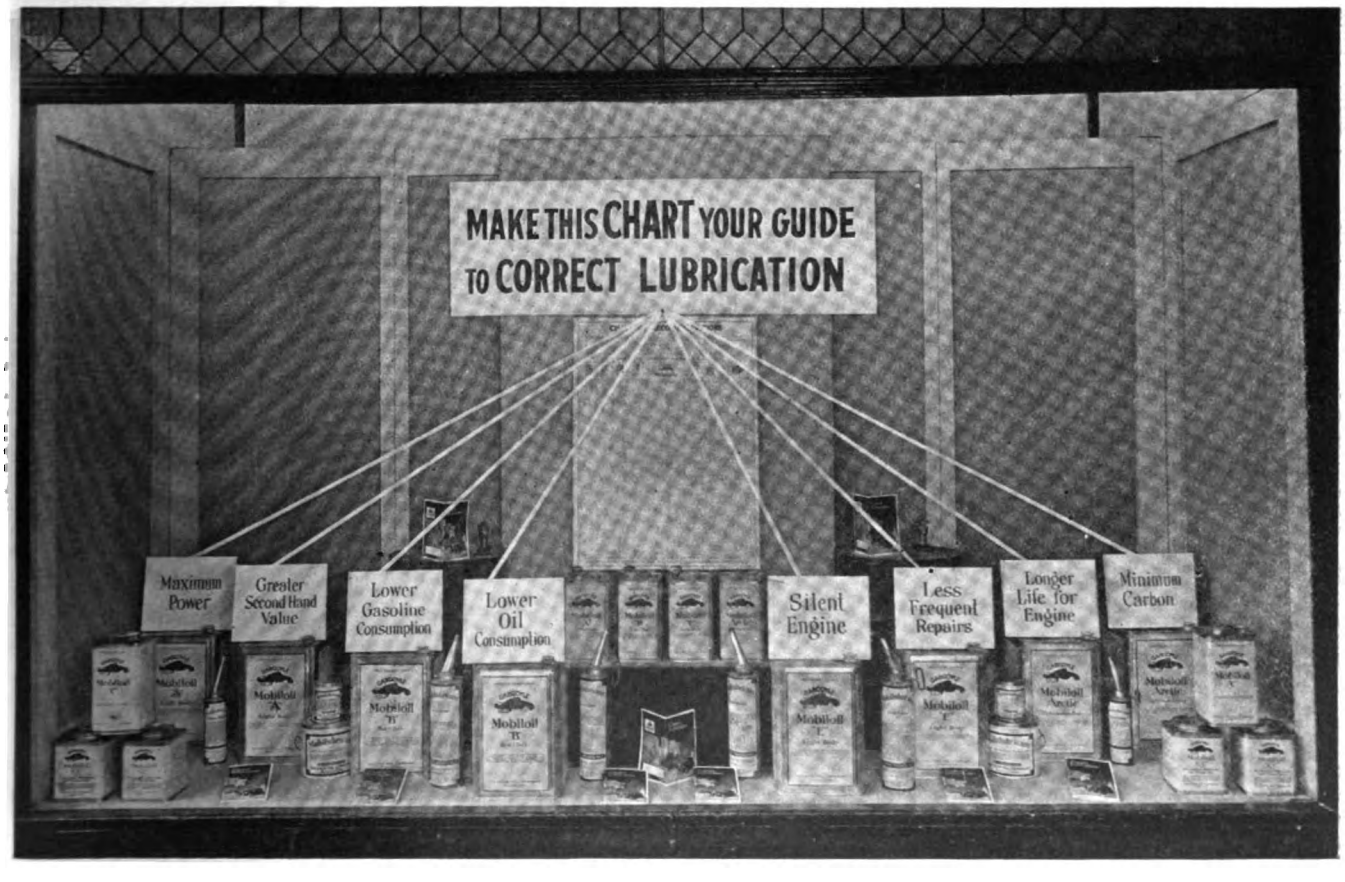
A carload of oil is a man's size order. It puts you in the big dealer class. It is worth talking about. The cards bring out the demand for correct lubrication—how you are meeting it—and states that you have the correct grade of oil for your customers' cars

The window pictures and the ideas on these four pages are contributed to Motor World by the Vacuum Oil Co., New York

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A wide range of popular cars and motorcycles is listed in this window and the correct oil for each specified. Take care in placing the cards bearing the names of machines. Be sure that the card bearing the name of a car or motorcycle is placed against the can which contains the correct oil for that particular make of machine

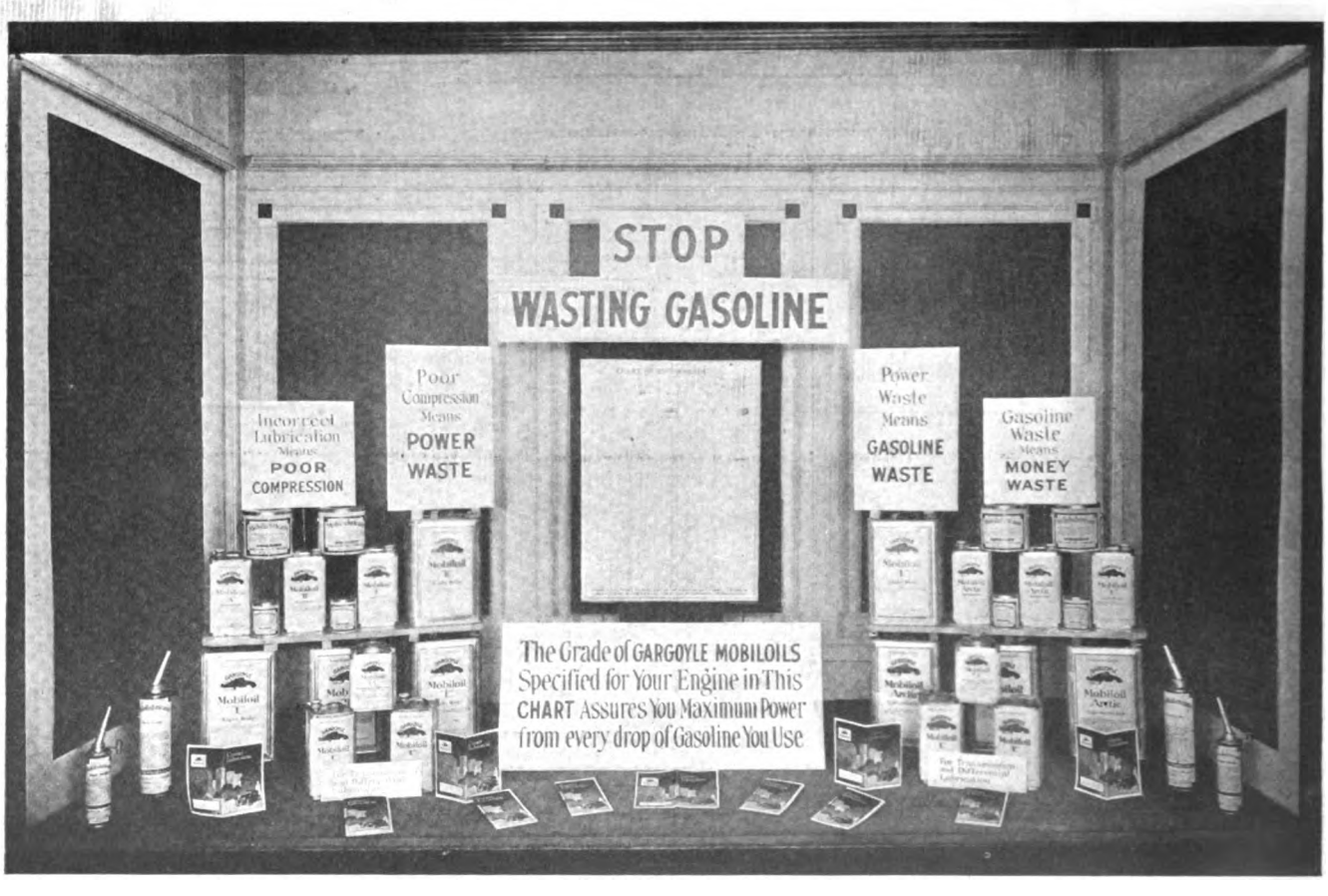


This window features eight benefits of correct lubrication and ties up the chart with the grades of oils recommended

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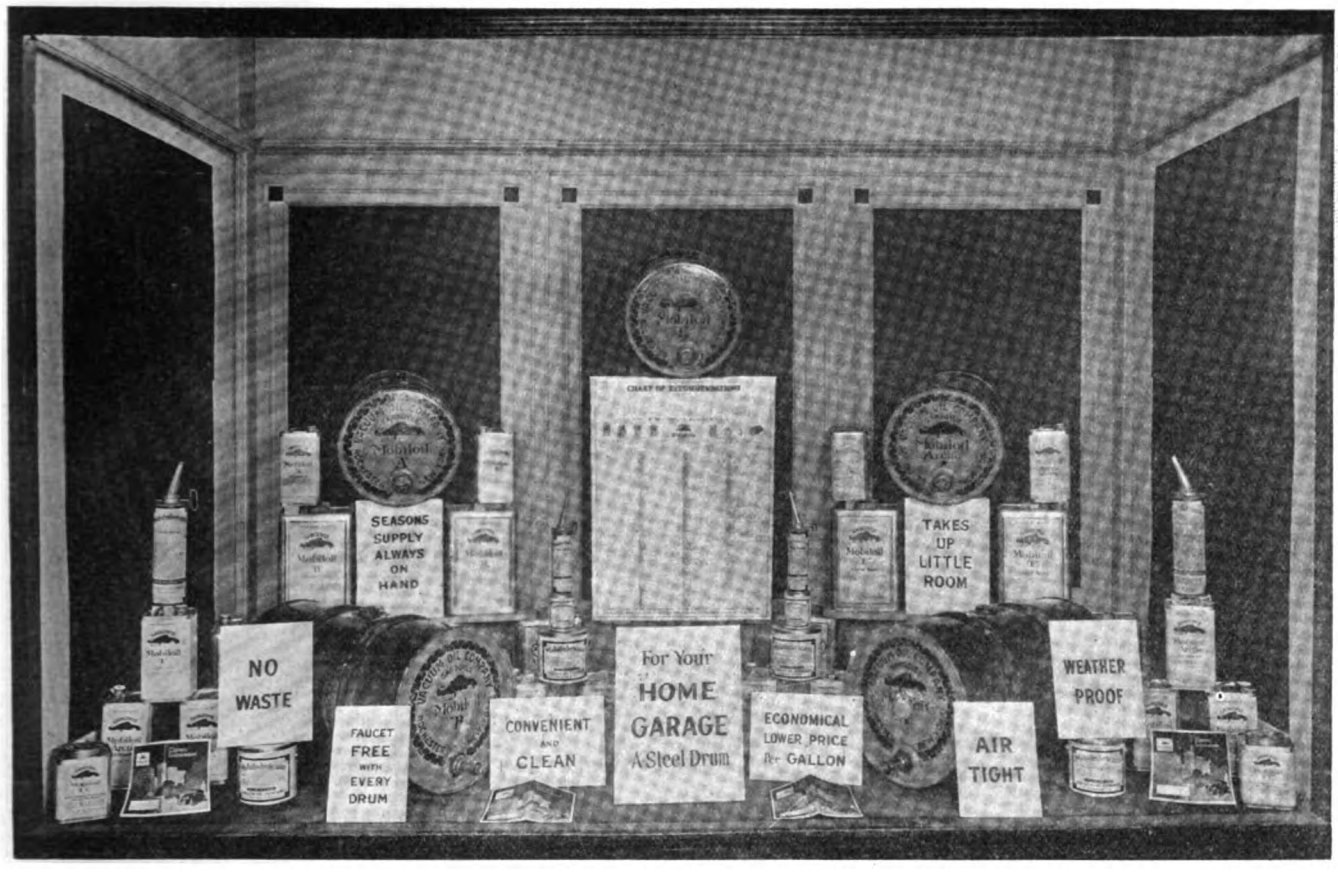


Here is a window that will interest the new motorist as well as the veteran who has graduated from the "flivver" into the 12-cylinder class



This window tells a strong sales story of gasoline economy effected by correct lubrication. Be sure the cards are arranged exactly as shown. In this way they tell the story step by step and in themselves form an arch for the top of your display

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A window that will boost your sales of oil in large size containers. A direct message to the private garage owner that brings out the selling points of a steel drum of oil



The caption of this window is "Science versus Guesswork." It contrasts the benefits of correct lubrication with the penalties of "hit-or-miss lubrication." The "junk pile" here is composed of broken gears and piston rings, scored cylinders and worn bearings

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Repairshop Shortcuts

From The Motor World Roadman

PARTS CARD HOLDERS

No. 1455—A most convenient way of holding a parts card of the stockroom bins is by means of a metal holder that may easily be made in any tin shop. The tin is cut into a rectangle about 1 in. longer and ½ in. wider than the card to be held, two of the corners are clipped and then three of the edges bent over. When tacked to the face of the bin the parts or inventory card may be slipped into it. The cost of these holders is practically nothing and they have been found to be entirely satisfactory.—F. E. Cooper, McAlister Bros., Pittsburgh, Pa.

ADJUSTABLE SHOCK CRANE

No. 1456—This crane possesses the feature of an adjustable cross-bar, permitting the chain block to be raised when a high lift is required or to be lowered, as when removing a gear box or axle. The legs are hinged to the cross-bar at their point of attachment so that they may be brought together or extended, being locked in either position by a tie-rod. When not in use, the legs are brought together and the crane placed close to the wall, where it occupies little space.—C. D. Crawford, Lawrence Motor Car Co., Pittsburgh, Pa.

CUSTOMERS' CAR KEY SYSTEM

No. 1457—Only two keys are supplied to each car owner, and as these keys differ widely much difficulty is experienced when the key is lost and replacements are not instantly available. In the larger service stations it is advisable to have on hand at all times two extra keys for each car, and these may be easily stored on a customers' car key board. On Cadillac cars the locks run from S-250 to S-500, and some one of these keys will fit any Cadillac car. By simply keeping the number of the key, the service station can easily make immediate replacement on lost keys.—F. E. Cooper, McAlister Bros., Pittsburgh, Pa.

TOOLBOX HANGER

No. 1458—When working on a chassis on which the running board and practically all other parts are removed, about the only place to put the toolbox is on the floor. If it is placed on the frame section it usually tips over, and if placed on the floor the mechanic loses much time by bending over and picking up the tools. By providing the side of the toolbox with a sheet-metal hanger that may be slipped over the side of the car frame the toolbox is always near the mechanic's hand and when he moves it may easily be moved to follow him. In some instances it has been found desirable to place a similar hanger on the opposite end of the box so that it may be suspended from the front axle, as when working beneath the car.—Maxwell Motor Co., Detroit, Mich.

SPEEDOMETER TESTER

No. 1459—Road tests for determining the accuracy of a speedometer are not positive, and for this reason some method for checking the speedometer in question with a speedometer known to be right is advisable. An apparatus for doing this consists of a speedometer drive, driven by a friction wheel that may be set to any desired speed, the drive driving both the speedometer being tested and a standard speedometer. The speed may be adjusted so that the standard speedometer reads successively at 5, 10, 15, 20 m.p.h., and so on, up to the full capacity, and the corresponding reading of the speedometer being tested is compared with it. If a marked difference is shown, the speedometer should be returned to the manufacturer for repair, but if the difference is only slight, the car owner can easily determine the accurate speed by knowing what the reading should be in any instance.—Stewart-Warner Service Station, Pittsburgh, Pa.

BUICK VALVE TOOL

No. 1460—The usual method of dismantling Buick valves is to compress the spring in a vise and remove the pin. This, however, is not so easy or efficient as when a special tool is used. This tool is simply a steel lever carried on a metal rest that is bolted to the bench, permitting the spring to be compressed and locked in the compressed position. The pivot end of the lever may be attached to the rest in any one of three positions so that several sizes of valve cages may be accommodated. The lever likewise carries an H-shaped piece of metal that fits over the valve stem and down on to the washer, so that the spring is compressed and the valve left in the normal position. One man can assemble or disassemble an entire set of valves in a very short time with this device.—W. J. Stewart, Jr., Buick Motor Co., Pittsburgh, Pa.

PAINT-ROOM ROLLING DOOR

No. 1461—All dust and cold air should be excluded from the paint room, yet the doors must be large and easily opened. A rolling canvas door is well adapted to these requirements in that it is easily operated and can be locked almost airtight. Two layers of canvas are used, having wooden cross-strips between them at intervals to provide rigidity, a round wooden cross-piece at the bottom serving as a roll. The door is opened or closed by means of ropes passing around this roll and over a pulley. When closed the door is locked at each side by a wooden locking strip.—F. E. Cooper, McAlister Bros., Pittsburgh, Pa.

JACK ATTACHMENT

No. 1462—Most axle manufacturers recommend that a jack never be placed beneath the truss rods. To do so is likely to spring the axle or rod. A jack attachment permitting this to be done is a U-shaped piece of flat steel having a round shoulder at each end and fitted into drilled holes in the jack rest. This support is slipped around the truss rod and rested on the end of the jack so that the lifting strain is applied directly to the axle.—J. S. Perkins, Dodge Bros. Service Station, Pittsburgh, Pa.

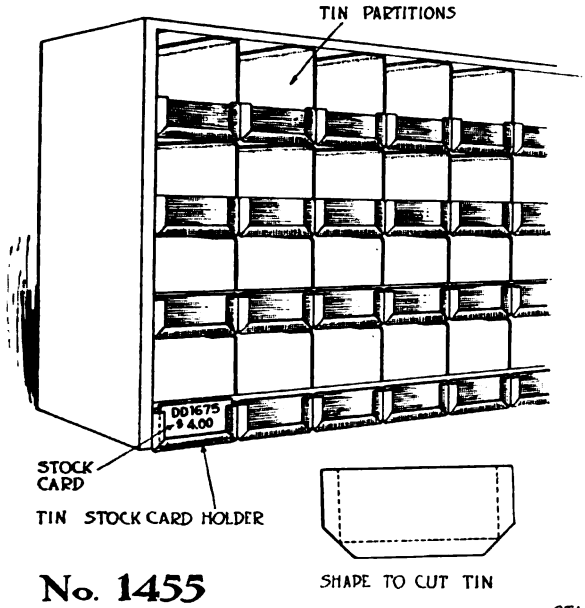
DEMOUNTABLE WHEEL STAND

No. 1463—Demountable wheels are fine for making tire changes on the road, but are not so easy to work upon when removed from the hub and when a tire change is being made in the shop. Hence, where considerable work is being done on demountable wheels the work may be speeded up by the use of a wheel-repair stand. This stand is simply a small bench in the center of which is mounted a single spindle and hub, over which the demountable wheel is placed. In this position the tire may be replaced or removed most readily if it is firmly held in a position convenient for use of the tire tools. An extension from the air line should be connected to a point convenient to the stand.—Maxwell Motor Co., Detroit, Mich.

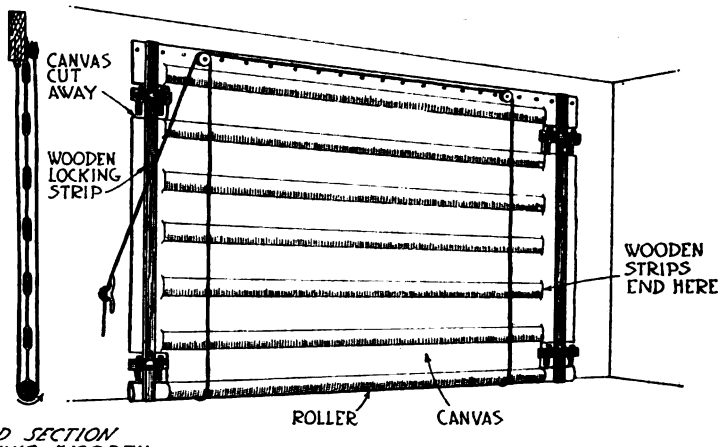
ACID CARBOY TILTING RACK

No. 1464—Acid carboys containing the sulphuric acid used in battery work are exceedingly cumbersome and unless some ready method of tilting them is at hand it is difficult to transfer the acid into a smaller container. A tilting rack for this purpose is of strap iron riveted together from a base on which hangers attached by a clamp to the carboy are pivoted. The carboy is held in place by two clamp bolts and as the pivots are placed about the center of weight the carboy automatically comes back to the upright position after use.—Maxwell Motor Co., Detroit, Mich.

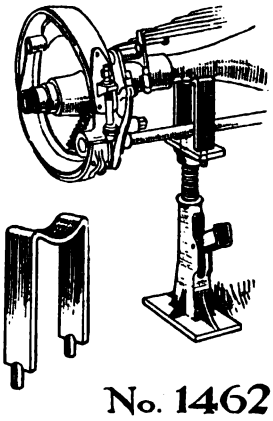
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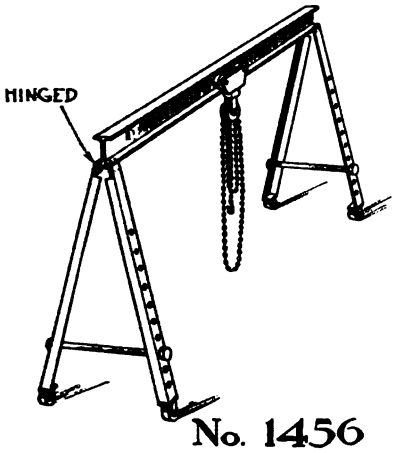
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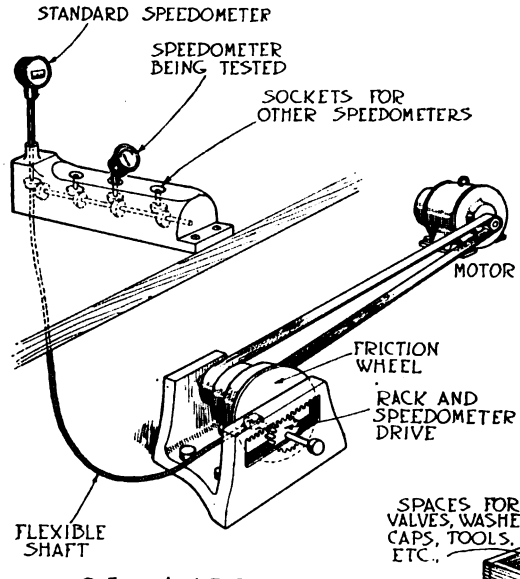
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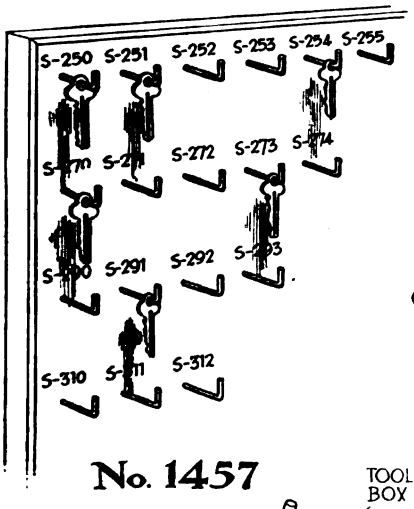
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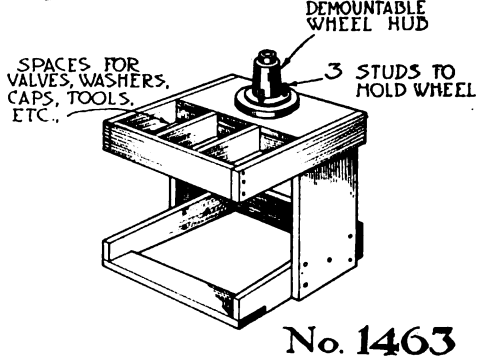
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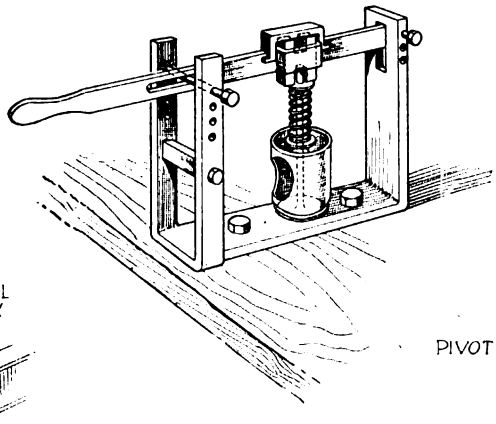
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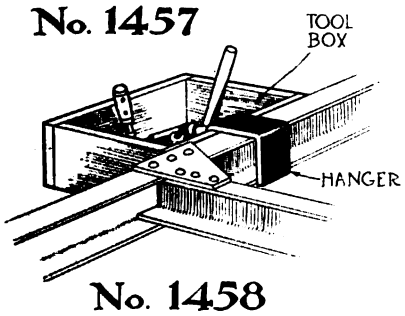
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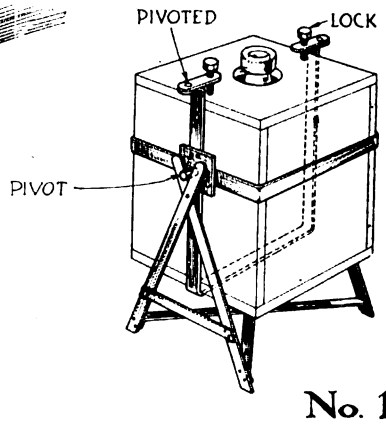
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Queries Answered

WE SHALL BE GLAD TO FURNISH INFORMATION to anyone free of charge. Be careful to give all the facts. Inquiries are answered by mail whether they are published or not, so do not fail to enclose a stamp and your correct name and address.

Ford Weak Magnet Cures

Answering Moorhead Machine Co., Clarion, Pa.

WEAK magnets on the Ford car are indicated in two ways. The first is "dim lights" and the second "frequent backfiring or explosions in the muffler when the car is running."

Before placing the blame for this on the magneto, you should be certain that this trouble is not caused by some other temporary defect in the electrical system. For example, a weak current may be caused by dirt or waste collected beneath the contact spring on the crankcase cover. The wiring, likewise, should be tested to see that no short circuits or grounds are present.

If no trouble is found in the system by these tests, it is possible that the magnets are weak. In this case the method recommended by the Ford company is to tear the magneto down and replace the magnets. In some parts of the country the magnets are recharged without removal of the engine, but in general this is a practice that is not to be recommended.

To reach the magnets it is necessary to remove the engine from the frame and to remove the transmission cover as well as the base of the engine. This exposes all of the magnets to view.

The strength of the individual magnets may be tested by seeing if they will support a block of steel 3 9/16 in. long and 1⅝ in. square. Failure to hold this block indicates that the magnets are weak and should be replaced.

The magneto coils themselves should be tested to see that they are not grounded on the frame, and that they do not have an open circuit. This may be done by means of two test points carrying a 5-ampere load on a 110-volt line, after removing the ends of the coil that are soldered to the frame.

If the magnets are found to be weak or the coils are short-circuited, an open circuit is present or the coils are grounded, the transmission assembly must be removed and the magneto torn down.

If the coils have been found defective, these should be replaced with new coils from the factory.

The new magnets should be built up on the flywheel in the same order that they were in the box when received from the factory, that is so that the legs of the magneto that do not attract each other are together. The other main point in the assembly is to see that the magnets are attached so that they do not strike the coils when the engine is cranked over.

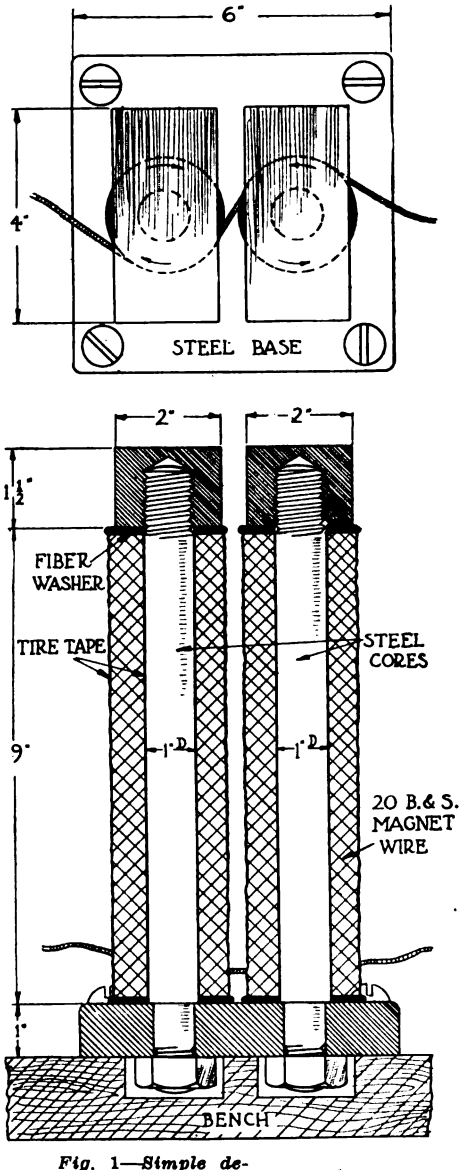


Fig. 1—Simple design of magnet recharger

Recharging Magnets

Answering Mr. L. F. Woodhead, 315 North Main St., Roswell, New Mexico

In order to properly recharge a magneto magnet it is good practice to strike it during the recharging process, as by this the magnetism is induced in a more permanent form. Fig. 1 shows a magnet recharger. To recharge the magnet the magneto is allowed to "find itself" on the poles of the recharger. It is struck two or three blows when in position with a lead hammer and then removed.

A good method of testing small condensers is simply to connect both sides of the condenser up to a source of direct current in which a small electric lamp has been placed, Fig. 4. The test comprises snapping the two ends of wire together. If the condenser is in good condition the spark caused by bringing the two wires together will "snap." If the condenser is not in good condition there will just be a small steady arc when the wires are joined together or broken. And if the condenser is short-circuited, which of course destroys its value as a condenser, the lamp will light before the wires are joined together.

Rheostats Explained

Answering W. E. Scott, 595 Whitman Ave Detroit, Mich.

A rheostat is a device for absorbing some of the electrical pressure. In order to make current flow through any sort of a wire or other conductor, it is necessary to apply electrical pressure (voltage), and under a given circumstance the greater the pressure (voltage) the more current will flow.

Suppose, for example, that you desired to charge a 6-volt storage battery from a 110-volt line. It would be necessary to absorb approximately 104 volts in some sort of a resistance or rheostat made up of lamps or wire.

A 16-c.p. lamp for a 110-volt circuit requires approximately ½ amp. current. Consequently, if such a lamp is placed in a 110-volt circuit, the current required will be ½ amp., No. 1, Fig. 3. If two lamps are placed in circuit in parallel the

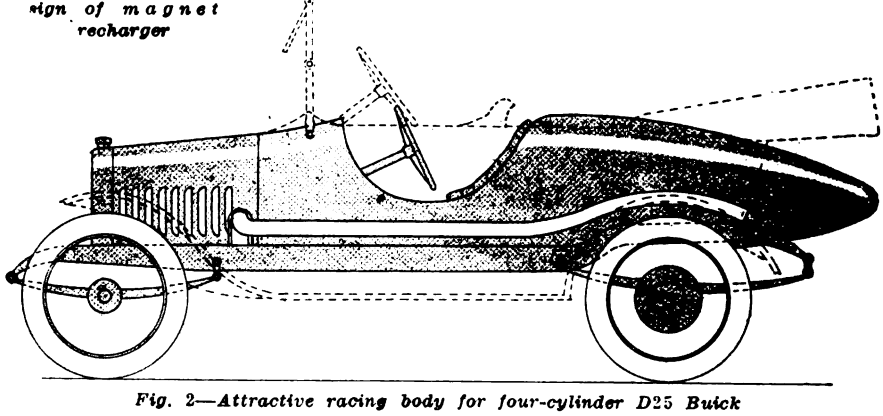


Fig. 2—Attractive racing body for four-cylinder D25 Buick

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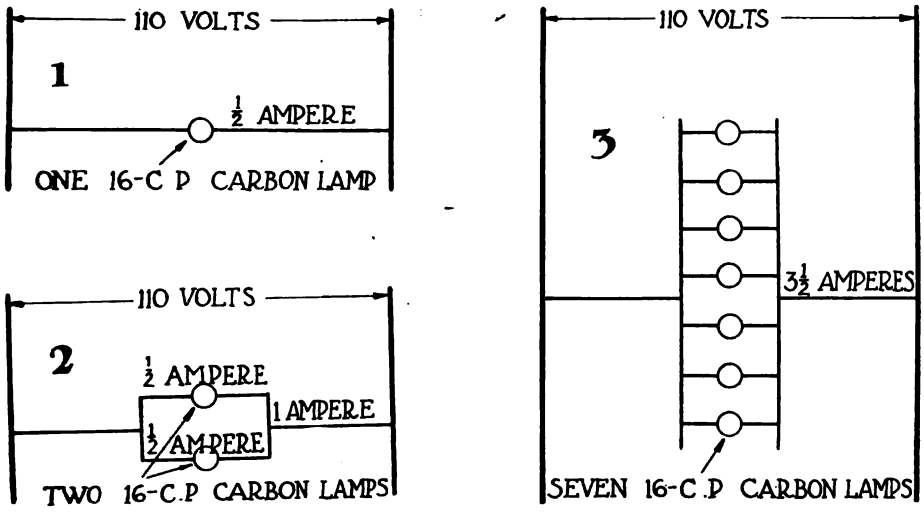


Fig. 3—Illustrating the use of lamps in parallel to give the flow of current desired. No. 3 is a diagram of a lamp board

total current flowing through both of them will be 1 amp., and so on. No. 2. In this way a current flow of any desired amount may be obtained. This form of rheostat is shown by No. 3.

Another form, which is easy to make, requires fine iron wire, say 1/32 in. in diameter, wound around an insulated cylinder, Fig. 5. One end of the circuit is connected to one of the electrical wires and the other electric wire is connected to a movable contact. The further down on the resistance that the contact is moved, the more resistance there is in circuit.

A stove pipe wrapped with asbestos and mounted in a suitable wooden frame will make a satisfactory arrangement. This apparatus may also be purchased.

Another way is to fill a barrel full of salt water, Fig. 6, with one metal contact in the bottom of the barrel and the other contact a plunger or a sheet which is immersed more or less in the barrel, according to the resistance desired.

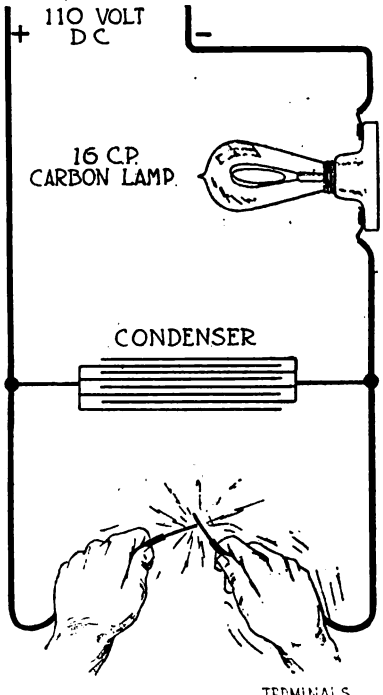


Fig. 4—Above—If the condenser is in good condition the two wires will "snap"

Making a Buick Racer

Answering John Williams, Salpulpa, Okla.

In building a car over into a racer three things should be remembered. The first is that one factor limiting speed is weight and wind resistance. The second is that at high speed "wire drawing" occurs, cutting down the power of the engine when it is most needed. This means that the engine cannot "breathe" properly, that is, cannot take in as much gas or exhaust as perfectly as when running slow. The third item is that all friction increases entirely out of proportion to the speed, as does the vibration, and hence some means must be taken to provide an additional supply of lubricant.

Taking up the first point—that of decreasing the weight and wind resistance—Fig. 2 shows a design for a racing body that follows the most recent practice. The steering wheel is lowered and the special body, having a long tail, is built up of sheet metal and fitted to the chassis. After the removal of the mud guards, the car then offers little resistance to the air, even when traveling at a high rate of speed. Since this body is rather expensive, you may find it advisable to adapt a stock racing body or to content yourself with bucket seats.

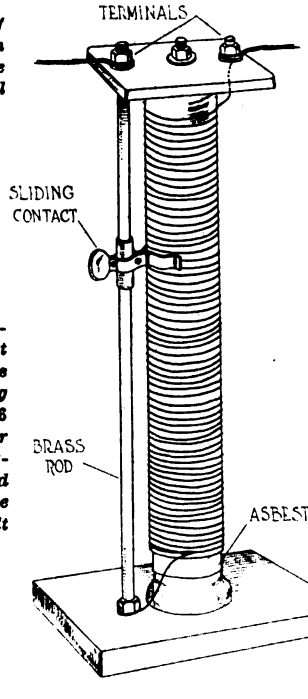
Shock absorbers should be fitted all around, as otherwise the car will not be steady at high speeds, and some drivers even go so far as to wind the springs with surgical bandage and grease and then tapeing the whole spring with tire tape and finally applying a coat of shellac.

We would not advise you to make any material changes on the engine beyond that of a general tuning up. Because of the decrease in wind resistance and weight it may be possible to advance the timing a certain amount, and this may be done by setting the timing gears ahead a notch at a time until the best possible results are secured.

Concerning the questions of putting in a higher gear ratio, we would advise that this is of doubtful benefit, unless it is found that the engine has considerable reserve power to permit the change. Increased speed is more often obtained by running the engine speed up instead of by increasing the r.p.m. of the rear wheels through an increased gear ratio.

The only material change that is necessary on the oiling system is to provide an auxiliary tank and plunger pump, whereby oil may be forced directly into the crank case at regular intervals during the race. This will care for all increased friction due to the increased speeds.

In addition you might install a special racing camshaft; possibly put in aluminum pistons; lighten the connecting rods, and so forth, and so make possible the installation of a high gear differential and thus obtain a few more miles per hour, but we doubt if the expense would justify the speed increase beyond the point obtained by lightening and changing the body and tuning the engine up.



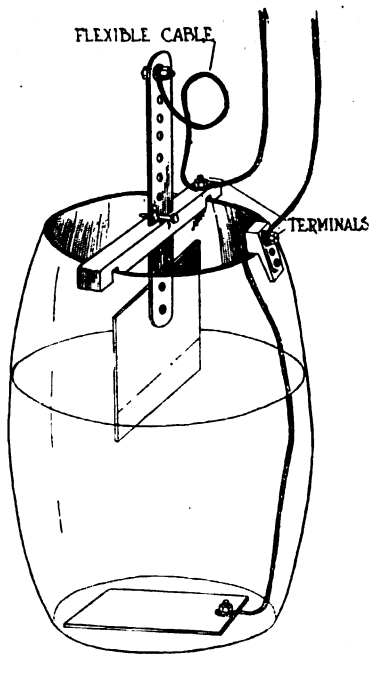


Fig. 5—Left—Simple wire rheostat The resistance is varied by changing the contact. Fig. 6 — Right — Water rheostat. The resistance is decreased by lowering the plate into the salt water

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Responsibility for Damage Doubtful

Editor Motor World: A customer brought a Reo in for starter and ignition repairs. After necessary repairs were made, the workman drove the car out for a test and adjustment. The streets were very rough and in making this test he happened to break a rear spring. Now the garageman did not know whether or not the spring was broken when it came in the garage for repairs. The owner claims it is up to him to replace this at his expense.—J. H. Hecker, Hecker's Garage, Covington, Ohio.

Answer—If the spring had been broken or was so badly cracked or strained that it would not stand up under even careful driving, the dealer should not be held responsible. If, on the other hand, the spring was broken because of the carelessness or negligence of the mechanic, his employer should stand the loss.

In this particular case it is not clear what the condition of the spring was at the time it was delivered to the garageman.

The most satisfactory way of settling the matter therefore might be for the dealer to contribute the labor of putting on a new spring and for the car owner to pay for the new spring. Both customer and dealer will be the losers if they let the dispute develop into a lawsuit, and it is a toss-up as to who would be declared the responsible party if the case went into court.

Enter, Another Motorist Protective Company

It is reported that the New York Insurance Department is beginning to take an interest in a concern which issues a contract for the protection of motorists which looks like an insurance policy but which bears upon its face the endorsement that it is not insurance indemnity.

The contract which is issued by this concern reads in part:

"Whereas, the members of this Association have joined together to secure the advantages of co-operative service, relating to their automobiles in the particulars hereinafter set forth and have by their Articles of Association duly authorized and empowered their officers, whose names are hereto subscribed, to enter into individual contracts in the name and on behalf of the Association with the individual members thereof, and

"Whereas ....., of the City of ....., State of ....., the owner of ..... automobile, Factory No. ....., is desirous of securing service from the Association for one year from this date,

"Now, therefore, in consideration of the sum of $19.75, in full paid for such service, for one year from the date hereof, the receipt whereof by the said Association is hereby acknowledged, the said Association does hereby covenant, agree to and with the said ..... that the Association will furnish and render unto him the following services:

"1. Theft Protection Prevention.—The Association has retained competent detective agencies to recover said automobile or its equipment when lost or stolen.

"2. Towing.—The Association will tow for said owner, without charge, the above-described machine when totally disabled within 10 miles of one of the official stations of the Association to said station.

"3. Adjustments. — The Association will represent said owner in the adjustment of any claim or controversy whatsoever relative to the use, maintenance and operation of said automobile.

"4. Service Department.—The Association through its purchasing department will furnish said owner with tires, accessories and supplies at wholesale prices.

"5. Bureau of Exchange.—This department is maintained solely for members who desire to list their machines for sale or exchange.

"6. Highway Improvements.—The influence and co-operation of the Association will be used in all movements pertaining to the improvement of highways and the betterment of automobile conditions."

Attached to the document is a sheet of legal paper wherein counsel for the Association agrees for $5 to render the buyer of the contract legal service, including defense against personal injury, defense against property damage, prosecution for property damage and general defense.

It appears that this concern was originally incorporated in Delaware with an office in New York City. Complaint has been made to the New York Insurance Department from time to time that agents were misrepresenting the contracts.

Trade-Mark and Copyright Differentiated

There is a difference between trademarks and copyrights which it would be a good thing for every dealer who may contemplate using a distinctive emblem or issuing a catalog to know.

A trade-mark is a distinguishing emblem or device which is used by a business man to distinguish his goods from those of every other person.

It is, in fact, a warranty that the product is made by that particular maker. Upon the filing of an application in the United States patent office, such a distinctive emblem or device will be reserved to the person making the application and will be his "trade-mark." It will be his exclusive property for 20 years and may then be renewed. The Government charges are $10.

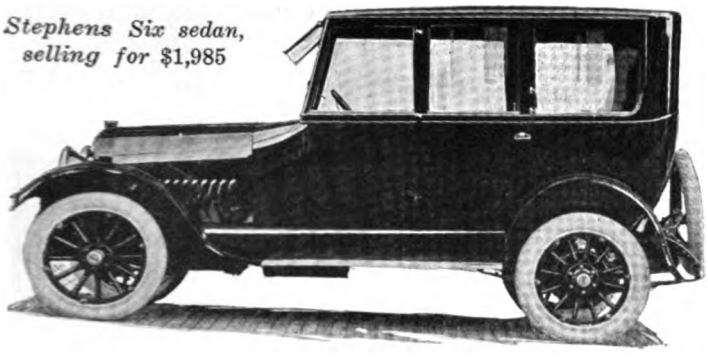
A copyright is used to protect a person's exclusive right in a book, catalog or some similar writing. The fee for this is $1 and the term for which it is issued is 28 years. All the necessary forms and papers may be procured from the Librarian of Congress at Washington upon application.

Is Soldier Liable for Debt Incurred as Civilian?

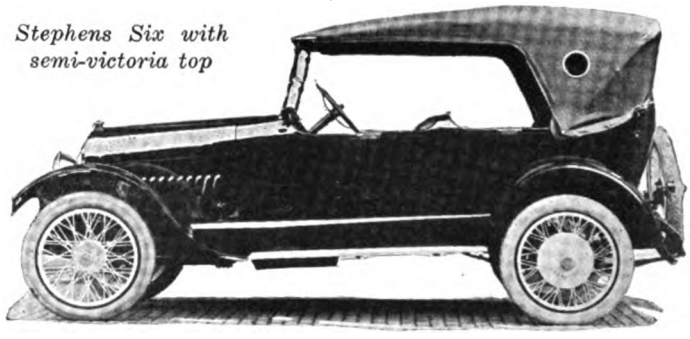
Editor Motor World: We have on our books several accounts due us by men who have entered the service of the army. We have been told that it will be impossible to collect these accounts from the fact that these men are in government service. Please advise what procedure to take on this matter.—Auto Supply Co., Lock Haven, Pa.

Answer—To date there has been no legislation which prohibits the collection of accounts from debtors who have entered the army. I understand, however, that a bill has been introduced in Washington and has been acted on favorably by the House of Representatives which would prohibit suits against debtors who have joined the Army and Navy. If this bill is acted upon favorably by the Senate and becomes a law, it will be illegal to institute suit against any debtors who may have entered some branch of the service.

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Stephens Six sedan, selling for $1,985



Stephens Six with semi-victoria top

New Stephens Six Sedan Priced at $1985

Harmonious Lines Characterize Both Sport and Sedan Models

LITTLE points of completeness in equipment set off the new sedan and sport models of the Stephens Six, both of which are now ready for delivery. Particularly harmonious lines mark each of these new bodies and both were designed and built in the shops of the Stephens Motor Branch of the Moline Plow Co., Freeport, Ill.

The sport model is a four-passenger car, considerably lower than the standard touring car, which gives it speedy lines. The rear of the front seat is finished with hand-rubbed black walnut, as is the instrument board. It has a drop door in the rear of the seat in which may be locked steamer rugs, blankets, etc. A semi-victoria top is regular equipment. The fenders are a special type to conform with the new style of body. There are tonneau lights on each side of the rear of the front seat. The right front door is equipped with a vanity set containing whisk broom, brush, drinking cup, mirror, box of soap and a compartment for goggles. The standard color will be Saginaw red.

The sedan has two unusual features—one, the complete elimination of heavy posts supporting the front of the top on both sides, and the other a complete water-proofed top. With windows closed, a hose may be turned on any part of the car without having the water get in. This body is not of the Springfield type. The windows drop into the walls of the body and the posts remain upright. The upholstery is whipcord. There are many little niceties such as Yale locks in the door handles, a small card case compartment concealed, which opens with the pressure of a button, etc. There are but two doors, these giving access into the rear compartment, the front seats being divided. All windows are in heavy plate glass.

The sport model lists at $1,550 and the sedan at $1,985.

Allen Has Three New Models

Two Open Cars and a Sedan Offered

FLEXIBILITY and economy are two features that mark the engine in the Allen line for 1918 which will consist of three models—a four- and five-passenger touring at $1,095 and a five-passenger sedan at $1,395. This engine, which is Allen's own make, has a bore of 3¾ in. and a stroke of 5 in.

Cylinders are L-head and lubrication is by splash-circulation. The carbureter is a Stromberg, taking fuel from a Stewart vacuum tank and the electrical system is a two unit Westinghouse. A Borg & Beck single plate dry disk clutch together with the gearbox is in a unit with the engine. Drive is Hotchkiss, there being a hollow propeller shaft with two universals that transmits power through spiral bevel gears to the floating rear axle.

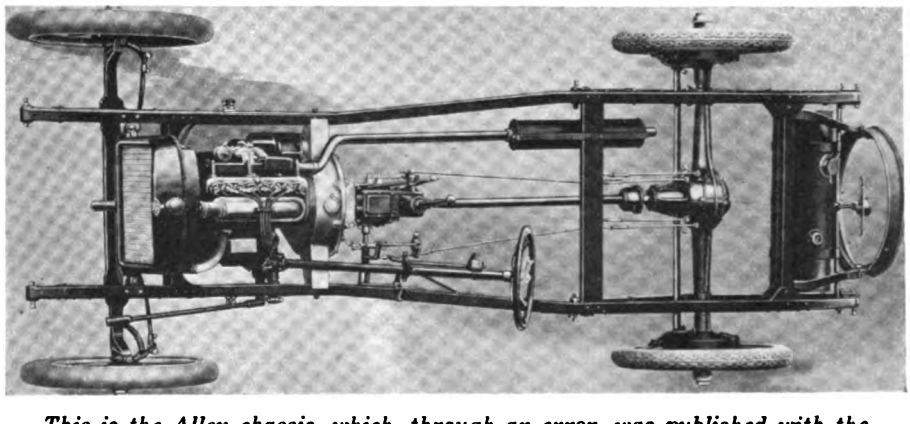
One side of the engine carries practically all of the accessories. For example, the plugs, valve adjustment, oil pump, oil filler, priming cups, etc., are all on the carbureter side of the engine.

The new Allen bodies are roomy, low-hung and finely finished. The upholstery covers double deck springs which make for easy riding. The rear seat is 49 in. wide, which gives room for three large passengers in the rear.

Neatly arranged on the dash is the carbureter choke, speedometer, ammeter, Connecticut automatic ignition circuit breaker and dash light. All electric controls for starting, lighting and ignition and the Garford motor-driven horn are in unit in the Connecticut rotary master switch mounted just below the wheel on the steering column and locked by a Yale key.



Allen five-passenger touring model, priced at $1,095



This is the Allen chassis, which, through an error, was published with the Hupmobile description and wrongly captioned

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Winter Business

Are YOU Plugging for Winter Business?

Make Your Shop Make Money

There is a double reason why you should make money in your shop: Winter causes its usual slump, and now the war has accentuated the effect

EVERY dealer, every garageman, every repairman should RIGHT NOW dig into the shop end of his business. He should lay plans NOW to make the shop bring in a volume of earnings for many months to come.

The shop should be made a profit producer, not only for the coming winter, but for the coming summer and next winter.

No one knows when the war will end. No one knows how seriously the war may cut into car sales. But this we do know: Unless something quite unlikely happens cars will continue to run, and the more old cars there are running the more will be the need for service and repairs.

If every factory should shut down to-day, there would still be enough work to keep many shops going—provided they went after the work and GOT IT.

One manufacturer is advising his dealers to lay plans for giving service—paid service, of course. It is good advice to every dealer.

To get this work plans must be laid

Send Out This Letter NOW

The price of everything is going up.

It is quite likely the price of service work will go up before long. Our country demands men. It needs the best we have.

We shall give these skilled workers gladly—with anything else our country needs—but we shall also have to ask higher prices for our work if we are to provide employment for those who are left behind.

It is our suggestion that you bring your car to us NOW and let us give it an inspection. Let us tell you what it needs to put it in condition for another year or MORE of service.

We are well conditioned right now to handle this work. When spring comes we shall be rushed.

Will you please bring it in and ask for an inspection? That costs nothing.

Christmas Cards

Are you getting ready to send out Christmas cards? This is about the last mention that can be made of the subject, because the time to start on this work is about up.

These cards should be in envelopes, addressed and stamped and ready to put into the mails the last few days of the week before Christmas. They should reach the prospect on or before—not after—Christmas.

An attractive card may be obtained from Motor World, with envelopes, for $2 to $3 per hundred, depending on quantity. These prices include envelopes.

HOW MANY CAN YOU USE?

Especially must an effort be made NOW, because many car owners may, as usual, lay their cars up until spring and then descend upon the trade on the first sunny day with a demand for repairs and overhauling. Our usual winter-time condition is with us regardless of war conditions.

Therefore, get your list of owners and prospective repair customers in order and get a letter ready to send out NOW

Stealing the Ideas of the Concrete Man

The card at the left was sent to dealers by the Universal Portland Cement Co., Chicago, to sell dealers on the idea of Winter Business. What is to prevent the dealer stealing the concrete man's idea and selling the car owner on the idea of Winter Motoring—which means Winter Business for the dealer. The original of the card is 3½ by 6. Have your printer do this card at the right and mail it.

Winter Profits

Cold weather need not stop concreting. Inexpensive protection and artificial heat are sufficient to keep almost any job going. The **advantages** are:—

1. Equipment busy 12 months—lower overhead.
2. Experienced gangs kept intact—greater efficiency.
3. Labor supply greater—possibly lower costs.
4. Materials more easily obtained—no delay.
5. Earlier use of structure—quicker return on investment.

The methods are simple. Send for free booklet

"Concreting in Cold Weather"

(OVER)

Winter Motoring

Cold weather need not stop motoring. Inexpensive protection and artificial heat are sufficient to make any car comfortable. The benefits of Winter Driving are:—

1. Better health—the air is bracing.
2. Time saved—winter walking is hard.
3. Family benefits—more outdoor life.
4. Greater efficiency—you can work better.
5. You serve your country by being efficient.

Winter Car Comforts are inexpensive. Ask us.

"Winter motoring makes longer life"

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How One Jobber Pushes Winter Goods

And there is a big thought here for both Jobber and Dealer

Gaul, Derr & Shearer, a Philadelphia jobber, is sending to its salesmen the letter that is shown on this page. This letter is shown for two reasons:

1—It is a good sample of the constructive Winter Business work that the jobber may do.

2—It is to the dealer and garageman a mighty good list of suggestions for getting Winter Business.

Every jobber and dealer should read this letter. Then, each jobber should make strong Winter Business plans. And each dealer should jump into Winter Business in a style that will bring him a profit instead of a slump and a loss.

Motor World requests that jobbers, dealers and manufacturers send in their plans and ideas for getting Winter Business. We want to print them.

He Wants a Letter

Editor Motor World: I have read your letters in Motor World on how to sell different articles in the automobile business. I am running a small garage and enlarging it at present. I would like to send to every automobile owner in this locality a well worded letter covering everything in the garage line and bringing out the larger and better facilities we shall have after our new addition is finished.

I would like you, if possible, to send me such a letter. As I am a reader of your Motor World, I would be very much pleased if you would help me in this affair.—H. A. Himberg, Walk Hill Garage, 726 Walk Hill Street, Mattapan, Mass.

The Letter

This is a time of year when you should give careful attention to your car.

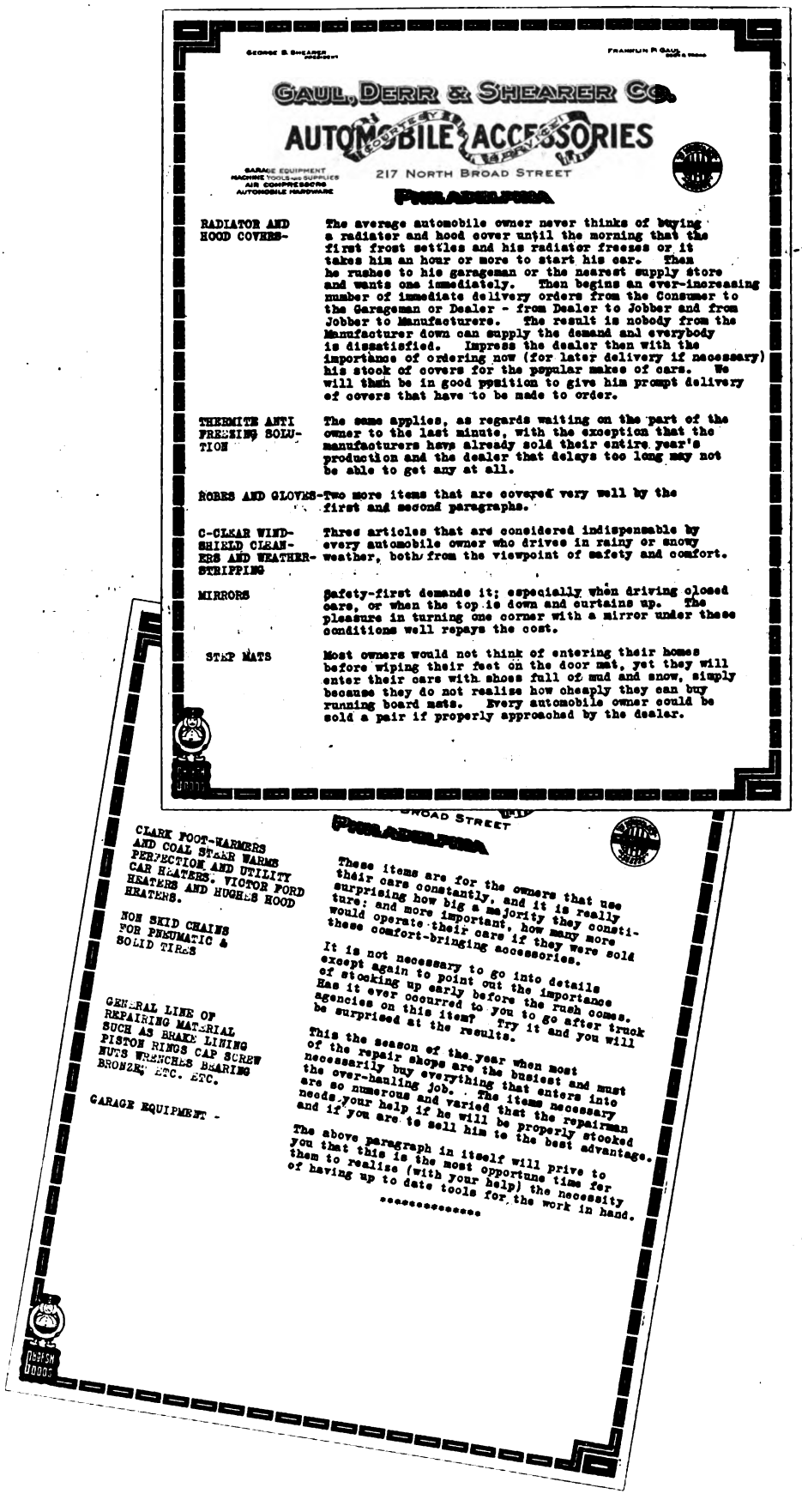
After a season's driving it may need numerous little adjustments and attentions to prevent small trouble becoming big—and expensive.

Your first step should be an INSPECTION. Thereafter, if any work is needed you should, of course, patronize a good garage.

The Walk Hill Garage has always been a good garage, but to-day it is better than ever, for we have just overhauled it.

The building has been enlarged, new equipment has been added, our service plan has been improved, and we are better able than ever to give you service that will please you.

We invite you to visit our remodeled home. We are so enthusiastic about it ourselves that we sometimes seem too enthusiastic when we try to tell others about it. But we do believe you will agree there is SOME excuse for our enthusiasm when you see the new place, the new facilities and the up-to-date stock of accessories, all of which are for the purpose of making your winter motoring a pleasure and a comfort.



GAUL, DERR & SHEARER CO.

AUTOMOBILE ACCESSORIES

217 NORTH BROAD STREET

PHILADELPHIA

RADIATOR AND HOOD COVERS— The average automobile owner never thinks of buying a radiator and hood cover until the morning that the first frost settles and his radiator freezes or it takes him an hour or more to start his car. Then he rushes to his garageman or the nearest supply store and wants one immediately. Then begins an ever-increasing number of immediate delivery orders from the Consumer to the Garageman or Dealer - from Dealer to Jobber and from Jobber to Manufacturers. The result is nobody from the Manufacturer down can supply the demand and everybody is dissatisfied. Impress the dealer then with the importance of ordering now (for later delivery if necessary) his stock of covers for the popular makes of cars. We will then be in good position to give him prompt delivery of covers that have to be made to order.

THERMITE ANTI FREEZING SOLUTION The same applies, as regards waiting on the part of the owner to the last minute, with the exception that the manufacturers have already sold their entire year's production and the dealer that delays too long may not be able to get any at all.

ROBES AND GLOVES—Two more items that are covered very well by the first and second paragraphs.

C-CLEAR WIND-SHIELD CLEANERS AND WEATHER-STRIPPING Three articles that are considered indispensable by every automobile owner who drives in rainy or snowy weather, both from the viewpoint of safety and comfort.

MIRRORS Safety-first demands it; especially when driving closed cars, or when the top is down and curtains up. The pleasure in turning one corner with a mirror under these conditions well repays the cost.

STEP MATS Most owners would not think of entering their homes before wiping their feet on the door mat, yet they will enter their cars with shoes full of mud and snow, simply because they do not realize how cheaply they can buy running board mats. Every automobile owner could be sold a pair if properly approached by the dealer.

BROAD STREET

PHILADELPHIA

CLARK FOOT-WARMERS AND COAL STOVE WARMS PERFECTION AND UTILITY CAR HEATERS. VICTOR FORD HEATERS AND HUGHES HOOD HEATERS.

NON SKID CHAINS FOR PNEUMATIC & SOLID TIRES

GENERAL LINE OF REPAIRING MATERIAL SUCH AS BRAKE LINING PISTON RINGS CAP SCREW NUTS WRENCHES BEARING BRONZE ETC. ETC.

GARAGE EQUIPMENT -

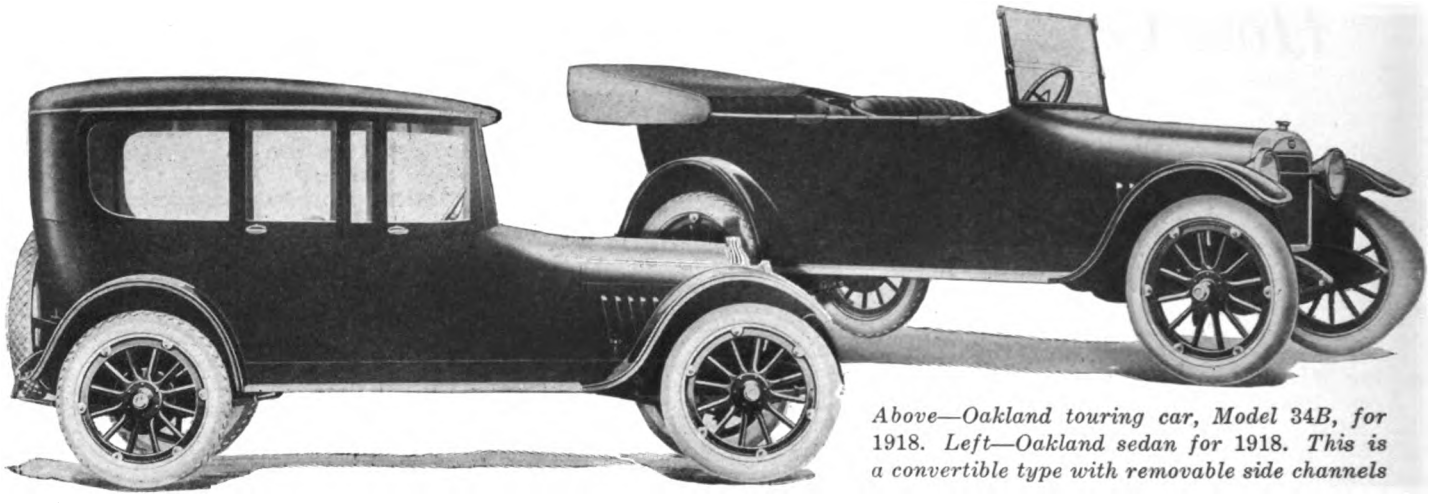
These items are for the owners that use their cars constantly, and it is really surprising how big a majority they constitute: and more important, how many more would operate their cars if they were sold these comfort-bringing accessories.

It is not necessary to go into details except again to point out the importance of stocking up early before the rush comes. Has it ever occurred to you to go after truck agencies on this item? Try it and you will be surprised at the results.

This the season of the year when most of the repair shops are the busiest and must necessarily buy everything that enters into the over-hauling job. The items necessary are so numerous and varied that the repairman needs your help if he will be properly stocked and if you are to sell him to the best advantage.

The above paragraph in itself will prive to you that this is the most opportune time for them to realise (with your help) the necessity of having up to date tools for the work in hand.

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Above—Oakland touring car, Model 34B, for 1918. Left—Oakland sedan for 1918. This is a convertible type with removable side channels

1918 Oakland Has Improved Power Unit

Five New Bodies—Sedan and Roadster Convertible Types—Mechanical Units Altered

DEVELOPMENTS in the Oakland car for 1918 are continuations of the refinements which were noted in the 1917 product. The body lines have been further refined and the mechanical units have been altered in minor details to round out the development of the car along the same lines as last year.

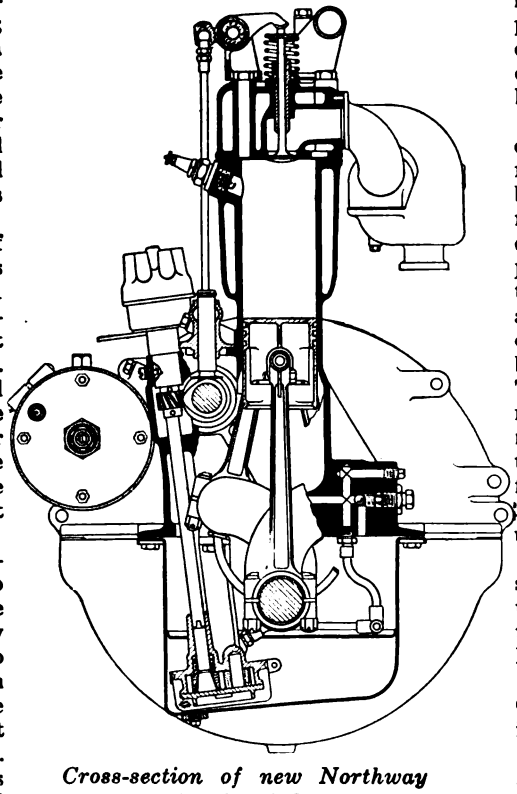
Five bodies are furnished on the 34B model, which represents the Oakland line for 1918. There is a five-passenger touring and a three-passenger roadster selling for $990; a roadster coupe for $1,150; a five-passenger sedan for $1,190; and a four-passenger coupe for $1,490. The sedan and roadster coupe are convertible types. The colors are coach green for the body and wheels, with hair line red striping. The frame, running gear, and fittings are black, with nickel trimmings on the exposed metal parts.

A year ago, through refinements of design, the Oakland-Northway unit was increased in horsepower from 35 to 41 at 2500 r.p.m. Due to a further refinement the peak of the curve is now at 2600 r.p.m., and it is 44 hp. instead of 41. The increase in power has been secured by a set of lighter reciprocating parts, the adoption of aluminum pistons, and better machining on the connecting rods. The chassis has been lightened and the whole car correspondingly cut down in weight to the extent of 270 lb.

The question of more efficiently burning the present grade of fuel has also been taken up, and an entirely new intake manifold has been developed. The new manifold has a cast exhaust jacket so arranged that the exhaust passes through a U connection into the jacket of the carbureter, then down through a tube at the side of the carbureter low speed jet. The greater part of the exhaust heat is given up to the intake at the upper end of the intake manifold, so that a gradual heating process takes place. The upper part of the manifold is kept fairly hot, while the throttle chamber of the carbureter is cooler and the low speed jet merely warm, the purpose being to allow the mixture to be warmed in stages.

Exhaust gases are carried off through a freer passage than formerly.

A change has been made in the lubricating system because of the higher speed characteristics of the engine. Instead of the circulating splash system, the oil feed is now by pressure through a hollow crankshaft. The oil pump is a gear type driven off the crankshaft, and the oil is forced in the customary manner through drilled leads to the crank pins, from where it is thrown by centrifugal force to the cylinders and other bearing surfaces. A pressure gage is on the dash and the lead from the crankcase oil pump to the pressure gage is the only external part of the oil piping. The internal position of the oil channels keeps the supply of lubricant warm.



Cross-section of new Northway engine for Oakland

From the maintenance standpoint, the car has been made more accessible. The removable head is continued, this engine being of the overhead valve type. The removal of the head carries with it the entire valve action. When the bottom pan is removed it is possible to work on the entire engine without further disassembly, as the pistons can be pulled out past the crankshaft and any of the bearings can be inspected and taken up. The timing gears can be reached by removal of the front cover, and for adjustments on the clutch it is only necessary to take up the toe board. The gearbox is fitted with a large cover plate which facilitates inspection of the transmission units.

While the chassis is essentially the same as last year's, refinements in detail have made it lighter. It is still of the tapered type, and the drive is still Hotchkiss.

The power plant is an overhead valve Oakland-Northway design 2 13/16 x 4¾ in. The cylinders are in a block.

The valve mechanism is actuated from a single camshaft, with the lifter rods on the exterior at the right side. The rocker

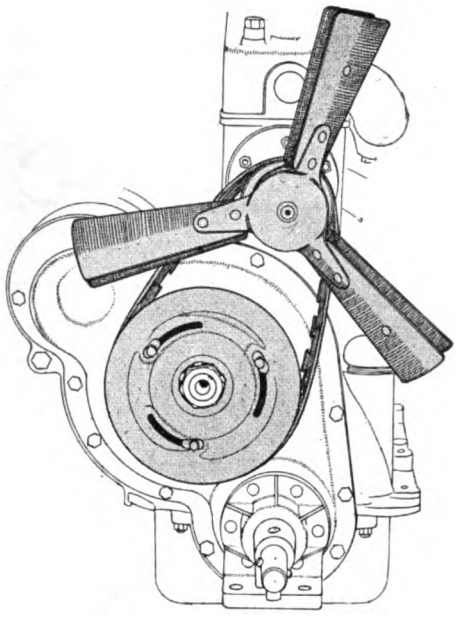
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arms are so arranged as to work on a 1 to 2 ratio, so that the lift of the cam is only half that of the lift of the valve. The rockers are assembled on two shafts, each carrying six rockers with a support between each two. The supports screw into the cylinder head and are easily removable. For adjusting the valves there is a nut at the top of the push rod at the point of contact with the rocker arm. The valves are 1¼ in. diameter in the clear and the lift is 5/16 in.

One of the features of the engine which is unique is in the front construction, which combines the water pump impeller, fan and fan bearing, with the fan belt driving both. The water connection is direct from this point to the radiator with the pump case a part of the cylinder block and also forming the fan support. Particular care has been taken to give an efficient belt with the simple adjustment, so that the layout can be readily taken care of by the average owner.

Both manifolds are separate from the cylinders and held to them by dogs and studs. With this arrangement in removing the cylinder head, the entire manifold connection can be taken off with it, and it is not even necessary to remove the carbureter. In fact, about the most important connections to be attached are the water and exhaust manifolds from the radiator and muffler pipe, respectively.

Gasoline feed is by the Stewart vacuum system in conjunction with a Marvel carbureter. The vacuum tank is on the front of the dash, that is, engine side, with the main tank, having a capacity of 12½ gal., at the rear. Delco equipment is used for ignition, lighting and starting.



Combined fan and water-pump unit on the Oakland

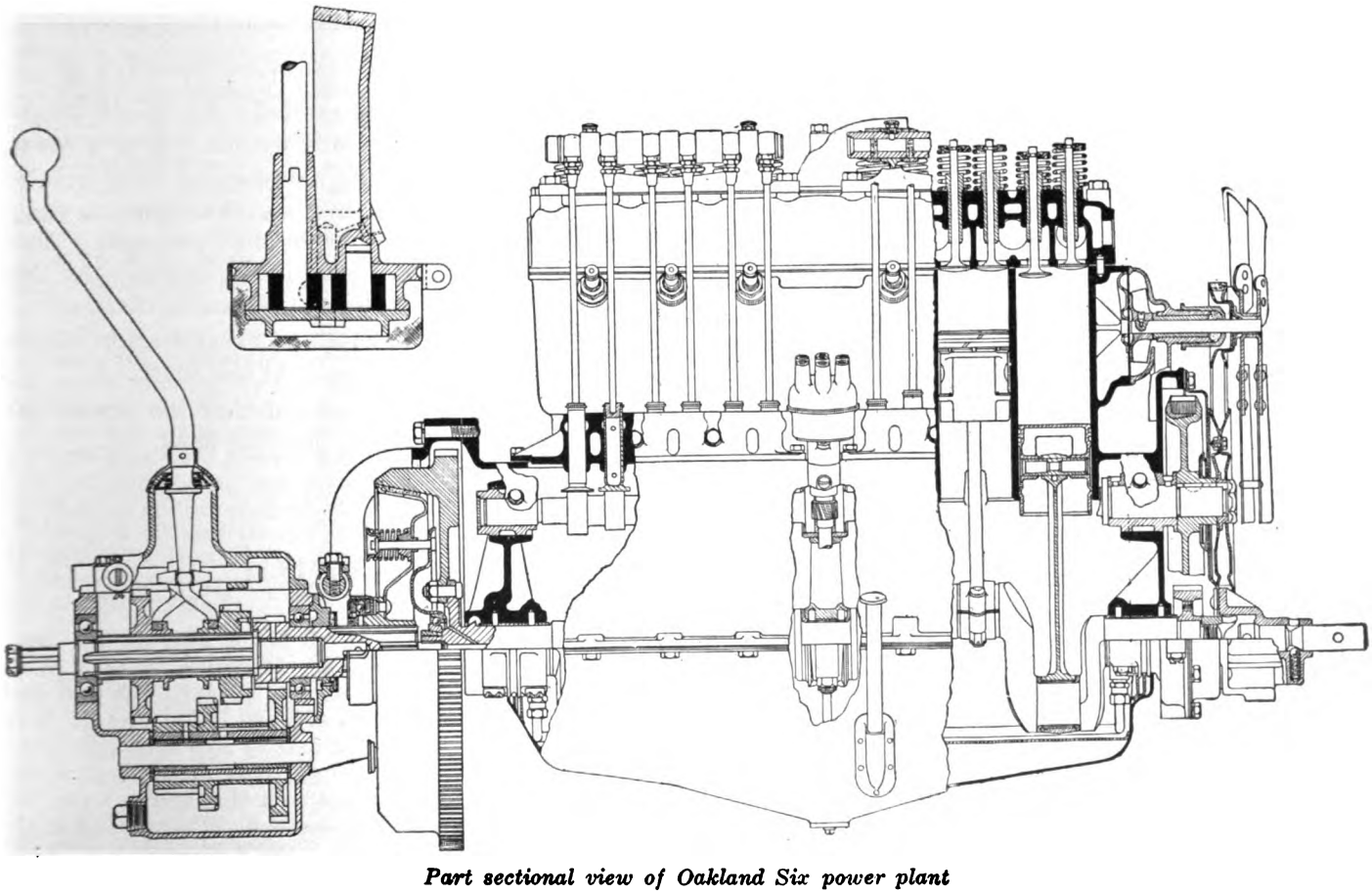
Both the clutch and gearset are in unit with the engine. The clutch is a cone type with a ball bearing release and the gearset provides three speeds with reductions in the gearbox of 3.09 to 1 on low, 1.73 to 1 on second, and direct on high. The reverse ratio in the box is 3.98 to 1. These, of course, are multiplied by the 4.5 ratio in the rear axle for final reduction.

Two universals and a hollow propeller shaft form the drive combination. Since the Hotchkiss drive is employed, the master leaves and the front shackle bolts of the springs are part of the driving units, and these parts have been made extra heavy in construction. It will also be noted that the spring supports are well toward the outside of the frame.

The channel member is 4½ in. deep by 2 in. wide and ⅛ in. thick. At the rear the width of the frame is 40¾ in., and it tapers to 28 in., this arrangement allowing of a turning diameter of 36 ft. The semi-elliptic springs forming units at the Hotchkiss drive are 51 in. in length, which is the same as that employed last year.

The axle is a Weston-Mott, which is a one-bearing floating type with longitudinally split housing. The brakes are contracting and expanding, operating on a 12 in. drum attached to the rear wheels. The brake layout is such as to give a simple chassis, the main rod in the brake being carried back to the rear cross member, at which point a short connecting link is inserted, transmitting the pull to the brake units. Adjustments on the brakes are made by means of turnbuckles which are just forward of the rear axle.

The steering gear is a Jacox irreversible type having a 17 in. wheel. The control is standard and the fittings are complete at the list price. The tires provided are non-skid in the rear and plain tread in front, and there is a full set of dash instruments, including speedometer, ammeter, gasoline gage, oil pressure gage, switch, etc. The storage battery is an 80 amp. Exide; the speedometer a Stewart, and in addition to these the car is provided with a full set of tools, lamps, license plate holder, electric horn, etc.



Part sectional view of Oakland Six power plant

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Editorial Observation

Why Not Excite Them?

WHEN the war situation, as it affects the motor war industry, first loomed threateningly MOTOR WORLD asked all the car manufacturers three questions, the object of which was to ascertian what the manufacturers were doing to keep their dealers informed on the situation and to help the dealers intelligently steer through the present troubled waters.

From several sources came the inference—and in some cases, direct statement—that nothing had been done because they didn't want to "excite the dealers." From the answers to the inquiries it may be assumed that if the factories didn't say anything the dealers wouldn't get excited—and that if the factories did say anything the dealers would stampede into a panic.

On this subject a word is not amiss: The dealers are not entirely without information on this subject, but what they would like to have is a few frank words as to where their factories stand.

Situations like this cannot be kept from them. They read the papers. They know there is a war on. They know the industry has been threatened with curtailment. They know that if it is curtailed seriously it will curtail their own businesses.

They know all this and still they are not stampeding. They are in no panic. They are not excited. They are not going to get excited. Some of them are now going over the top in France—and we'll wager they are not unduly excited. We never saw but one automobile man really excited and he hadn't been in the business very long.

This idea that the minute a factory man opens his mouth the dealers are all going to stampede into ruin is all wrong. Things will be several per cent better if all the factories will take the dealers into their confidence and let both sides of the contract pull together for the common good in equal knowledge.

At the recent convention in Detroit of one manufacturer's dealers an official said, in substance, this:

> "We want you to read the letters and bulletins the factory sends you from now on. In the old days dealers used to consider that there was a lot of bull and bunk in these factory communications. Maybe there was. But there isn't going to be any more. We're going to keep you posted on what happens, we're going to try to keep things running smoothly and we want you to pay attention to what we say. If we ask you to do something please consider that we want it done or we wouldn't ask. We are going to be frank throughout this situation."

Would that make a man excited? Or would it tend to allay his fears? More of it wouldn't do any harm.

During recent weeks the newspapers have printed stories that have permitted the public mind to exaggerate the situation, and while that was going on—and while such situations exist in the future—the best stabilizer is a frank statement from the factory.

Furthermore, all bombast and exaggeration should be eliminated. These times need the truth.

Let it also once again be said that the dealer can stand a lot of truth and not lose his head.

Make Show-Time Meeting Count

EVERY manufacturer of cars should begin now to look forward to the meetings of his dealers he will hold during the show period. There is, this year, a greater need than ever before in the industry's history for meetings of dealers.

And more than ever there is need for a constructive program at them.

This is NOT a year for cabaret affairs. It is no time for booze and jollity. It is time for serious thought.

Dealers will flock to the show this winter with two desires. One will be to view the show and see with their own eyes just what the industry has to present. The other desire will be for an authoritative word from some one on the situation.

This latter desire should not be ungratified. It is the duty of the factories in this emergency to take every possible step to acquaint their dealers with the true situation and to keep them all a part of a co-operative whole which works for the industry and their country in this trying time. At this time, as at no other period in the industry's history, co-operation is imperative.

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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome—especially if they are timely and brief.—THE EDITOR.

Editor Motor World. I have just read your article in your November 7 issue regarding the proposed cut on passenger car production by the Government and I am of the opinion that it would be a very disastrous blow to the automobile industry to allow a committee to be appointed that is not familiar with the automobile industry whatever.

A committee of that kind given a power to legislate against a great production would certainly be able to put thousands of men out of business in a very short time.

I believe the automobile industry of to-day is one of the largest factors the Government has to look toward for excess taxes and it would seem to me that they were certainly "biting the hand that is feeding them" if they do a thing of this sort just at this time.

I do not believe at this day and age that the Government should permit anyone to be appointed on a committee for this action, outside of our foremost automobile people who are thoroughly familiar with the automobile world and who would be able to serve the Government to the best advantage, that is, by turning those plants that are very anxious at this time to have the Government take them and letting those more fortunate in the industry go ahead with their building schedules, as a curtail at this time would be very disastrous to the automobile industry and to the people all over the country.

As president of one of the largest automobile and accessory companies of the United States, I can say for this company that it would certainly be a terrible blow to us as well as a great loss to the Government in other directions, by curtailing the automobile production at this time and I sincerely hope the authorities at Washington will appoint a commission from those who are familiar with the automobile industries.—Nebraska Buick Auto Company, H. E. Sidles, President. Lincoln, Neb.

War Demands Rigid Accounting

If a government investigator asked you what difference war conditions had made in your percentage of overhead, what would you tell him?

MEN who see far into the future lay emphasis upon several points that concern the motor car dealer and garageman.

One of these is: He must KNOW WHERE HE GETS OFF. The day has passed when you can guess and get by. You must keep books. You must know costs. You must keep your overhead down and your profits up as far as possible.

For a long time it has been said that the competition of the future would weed out the unfit in the motor car world and leave only the strong and well systematized—the good business men, both great and small.

Men talked on this theme at show dinners and conventions. Motor World printed it many times in its columns. But little did any of us think that the time was so close at hand. But it is HERE TO-DAY.

The unbusinesslike are going to be weeded out if the war goes on, as we all believe it will, for one, two, three, four or five years more. The dealer or garageman who hasn't his business IN HAND will have hard sledding. He won't be able to keep up, simply because he can't lay his fingers on the vital spots of his business.

There is yet a chance. There is still an opportunity for getting things on a business basis. It can be done in a comparatively short time if you start NOW.

Get your business RIGHT. Get some system into it. Learn your costs and overhead and KNOW just where to pare off and where to build up if the war makes big inroads. You can't revise your business to meet war needs unless you KNOW your business. To KNOW your business you MUST HAVE SYSTEM.

Motor World suggests this: Do one of two things, provided you have not a good system.

1—Go to some young accountant in a bank and engage him to put a system into your place of business.

2—If you can find no other system that suits you, get the Motor World Simplified System of Accounting.

The Motor World system was devised and published two years ago. Since then it has been installed in nearly 2000 salesrooms and garages. It has saved thousands of dollars for its users.

This system is simple. It is all in one book. There is one form for every thing you pay out, a second form for everything you take in, and a third form for what your customers owe you. That's all there is to it.

With it goes a booklet that explains the system and also general accounting in terms so simple any man who can read can understand how to use the system. Many of these systems are used by men who have no bookkeepers.

Get SYSTEMATIZED NOW and be in running order when the new year opens. If you delay you may only be hastening business disaster.

Read what R. S. Carter, Carter Auto Co., Studebaker dealer in Galveston, Tex., says about it:

"The system is all right. It has a kick to it which makes it almost impossible for the bookkeeper to make errors. We are highly pleased with the system and would not change it at the present time for any other system with which we are familiar."

Write to Motor World NOW about this system and get started RIGHT AWAY.

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The RETAIL NEWS

EAST

Boice-Perrine Co., Boston, accessory dealer, has moved into a large building on Cummington Street.

Olympian Motor Car Co., Boston, has been formed to handle that car with headquarters on Boylston Street.

King Motors, Inc., Boston, has taken on the Elcar.

Bryant G. Smith & Sons Co., Boston, Cole dealer, has taken the Elgin.

Alfred Cutler Morse, Boston, agent for the Phianna, has added the Westcott.

Lallme & Partridge Co., Boston, Ford dealer, has moved into larger quarters in Copley Square, and taken over a new service station.

Frank L. Brown Co., Boston, Premier dealer, has taken on the Empire for Boston and vicinity.

M. F. Chase Co., Boston, has taken on the Esta Water Auxiliator.

Henry B. Clark, Boston, has been appointed Northeast distributer for the Jensen tire pump.

Brockton Auto Co., Brockton, Mass., has taken on the Paige line.

Chevrolet Motor Co., Worcester, will move into a new sales and service building shortly.

H & H Motor Specialties Co., Boston, has taken the agency for the H & H carbureters.

Globe Tire Co., Boston, has been organized and a branch opened on Beacon Street, wits S. L. Blood in charge.

Reus Brothers Co., Baltimore, which makes a specialty of motor parts and lighting services, has added 10,000 sq. ft. to its plant.

Olympian Motor Car Co., Baltimore, J. Q. Gorfine, is now handling the Olympian. Gorfine was one of the first Ford agents in Baltimore.

New Garages

Chardon Realty Trust Co.....Boston

SOUTHWEST

Milo G. Clemens, Stet, Mo., has bought the Stratton Auto Repairshop.

George Robbins, Centralia, Mo., has bought the Miller & Pettitt Garage.

Chatman & Church, Greenfield, Mo., has bought the Lother Hayter Garage.

F. M. Maddox, Holden, Mo., has bought the W. H. Liddle, Jr., Garage.

V. T. Smith, Fairfax, Mo., has leased the Carter Garage.

W. E. McAntire, Joplin, Mo., has moved his garage from Tenth Avenue and Main Street to 217 West Fifth Street.

Freidank & Rothweiler, Palmyra, Mo., has bought the automobile business of Nix & Berghofer Hardware & Implement Co.

De Jarnett & Hulen, Centralia, Mo., has bought the J. D. Bowen Garage.

Mr. and Mrs. S. W. Daniels of Marlow, Okla., are opening an automobile repairshop in Harrisonville, Mo., in the rear of the W. L. Haines Building.

Robert W. Weeks, Elsberry, Mo., has leased a garage here.

Valley Motor Co., Pauls Valley, Okla., will build an addition.

G. A. Fletcher & Co., Ringling, Okla., are constructing a new building.

Boynton Garage, Haskell, Okla., is the successor to Boynton & Larkin.

Edgar T. Walters, Caruthersville, Mo., will have charge of the repair department of the Ford service station.

C. R. Urie, La Monte, Mo., is the new proprietor of the La Monte Garage.

E. V. Latham, Wesley White and W. W. Midgley have purchased the Clarkdale Garage and Machine Shop, Clarkdale, Ariz., from Kent Reese and Harry Amster. The firm will continue to handle the Overland, Kissel and Doble agencies in the Verde district.

H. A. Wiltenstein, St. Louis, has opened a used-car and accessory salesroom at 3914 Washington Avenue.

Harry Newman, Inc., St. Louis, Kissel distributer, has been named agent for Globe tires.

Phares Root, Independence, Kan., has moved the Ford Sales and Service to its new home in the Vincill Building.

Ralph Love, Arkansas City, Kan., has leased the Lee Krebs half interest of the Union Motor Garage and in partnership with Mr. Marshall has taken charge.

Levi Neff, Council Grove, Kan., has bought the Roswurm Garage of Newton Fisher.

J. S. Brothers, Humboldt, Kan., has sold his interest in the Trail Garage.

W. A. McKenney, Chocotah, Okla., has bought the garage of McKenney & Shields.

Clude E. Dewell, Arcadia, Okla., has succeeded the Shell Bros. in the Arcadia Garage.

Radecke & Mudge, Okmulgee, Okla., has opened an automobile paintshop.

Billy Myer, Alva, Okla., has bought the garage of Berry & Son.

Cecil Freeman, Enid Creek, Okla., has bought a garage.

Nabor & Cole Vulcanizing & Tire Co., Frederick, Okla., has installed a steam vulcanizing and retreading plant of the latest model.

Herbert Powell, Kaw City, Okla., has bought the Stefens Garage.

Kiowa Vulcanizing Co., Kiowa, Okla., has moved into a new building.

Will Everett, Big Springs, Tex., has sold his half interest in the Big Springs Co. to Emlett Morris.

Joe Ferguson and Harold Hurley, Pawhuska, Okla., have bought the garage of J. C. Ferguson, who will retire from business. The firm name is the Ferguson-Hurley Motor Co.

Ozark Garage Co., Carthage, Mo., has increased its capital stock from $3,000 to $3,500.

A. H. Richter, Gonzales, Tex., proprietor of the Guarantee Repair Shop, has purchased the stock of the Gonzales Motor Sales Co. and will move his shop from its present location to the quarters of the Motor Sales Co. in the Newman Cement Building.

M. B. Berryhill and E. A. Barnes, Abilene, Tex., have formed the Berryhill-Barnes Auto Top Co. and have gone into business on South First Street.

R. D. Sedwick and Garland Woodward, Coleman, Tex., have bought the Coleman Garage and Machine Shops of Joe Evans.

Harlingen Garage, Harlingen, Tex., has been purchased by F. A. Hayden & Son.

L. Adair, Denton, Tex., has purchased the Fox Bros. Garage.

Lawton Motor Supply Co., Lawton, Okla., has opened for business at 411 C Avenue. The proprietors are M. C. Stanford of Chicago and Mat Chaffee of Electra, Tex. The new firm will carry a line of automobile supplies, gasoline, oil and parts for Fords.

Charles Hargiss, Pittsburg, Kan., manager of the present Saxon and Chalmers Garage at Fourth and Pine streets, has taken a partner, Lewis Booth, and the two have leased the Central Garage.

John Heggy, Stafford, Kan., has bought the interest of Bert McComb in a garage and the place is now conducted under the name of Johnson & Heggy.

J. O. Campbell, Concordia, Kan., has opened a repairshop at the corner of Sixth and State streets.

Kay O. Burt, Osawatomie, Kan., has bought the Osawatomie Electric Supply Co. of T. L. Youmans and will handle generators and storage batteries.

J. C. Keepers, Olathe, Kan., is putting a new front on the Weaver Building and will open a filling station.

Geo. M. Sutton Motor Co., Oklahoma City, Okla., has moved into its new service department quarters at 521 West Second street. The whole building, 50 x 140, will be used as a service station for the Mitchell car. This will include the parts department and the repairshop. The Sutton Motor Co. will maintain its present quarters at 706 North Broadway as a showroom exclusively for new cars and such second hand cars as it has for sale.

Leslie Kitte and Joe Williford, Ardmore, Okla., have formed a co-partnership in the garage business and have opened a business on A Street.

Roush Bros., Custer City, Okla., have bought the garage from V. E. Rhymer, known as the Mutual Motor Car Co. and intend to make improvements.

W. H. Cross of Ioland has bought the Baldwin Garage in Arnett, Okla.

Glenn L. Hogan, Lindsay, Okla., has opened a storage battery service station in connection with his electric shop.

Roscoe Spaulding, Lindsay, Okla., has disposed of his garage business to A. F. Jefferson and Simon Patts.

Coman & Lair, Iola, Kan., have opened an accessory salesroom.

Rollin Cobb, Cuban, Kan., has bought out his partner, and now has full charge of the repair department at the Simpson Garage.

E. R. Prickett, Goodland, Kan., has opened a vulcanizing shop in the garage of Koontz & McGinnis.

Brown & Lurwick, Baxter Springs, Kan., have bought the Interstate Vulcanizing Co.

A. C. King, Atchinson, Kan., has opened an accessory shop.

Luther & McCoy, Spearville, Kan., have bought the Trail Garage.

L. Alton, Byers, Kan., has bought the garage and machine shop of Harry Myers.

McCumbers & Hyatt, La Plata, Mo., have bought the Davis Motor Co. Mr. Davis has bought the Star Livery barn and will remodel it into a garage, where he will handle the Ford car.

W. R. Moore, Doniphan, Mo., has bought the garage of A. Malugen.

B. R. Parker, formerly of the Slater Auto Co., Slater, Mo., has opened an automobile repairshop at Fifteenth and Campbell streets, Kansas City, Mo.

C. H. Mast, Chillicothe, Mo., has opened an automobile repairshop.

Lige Pulham, Carney, Okla., has bought the garage of L. Robertson.

Jackson & Sweendle, Stratford, Okla., have bought the Coffeen Garage.

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Schmidt & Geis, Marion, Kan., have bought the Ehrlich Garage, Durham, Kan.

W. S. Leonard, Dodge City, Kan., has opened a repairshop.

Standard Tire & Rubber Co., Kansas City, Mo., has opened for business at 1604 Grand Avenue.

Allison Bros., Joplin, Mo., have bought the Pioneer Vulcanizing Co. from William Sease.

Fouts & Dillener, El Dorado, Kan., have leased the Dilley Garage at 219 East Central Avenue.

C. A. Klopfensteine, Cherryvale, Kan., has bought the interest of his partner, J. P. Withrow, in the Main Street Garage.

L. S. Dobkin, Winfield, Kan., has bought the Winfield Machine Shop.

Hodge Motor Co., Sterling, Kan., has bought the Welch Garage.

George S. Dillon, Elgin, Kan., has bought the Elgin Garage.

S. D. Peavey, Hill City, Kan., has bought the Transue Garage.

J. H. Curtis, Denton, Kan., has bought the garage of G. E. Bechtold.

Enterprise Garage machine shop, Enterprise, Kan., has been enlarged and equipped with a new lathe and other machinery.

M. E. Whitney, Talmage, Kan., has bought the garage of Claude McVickers.

Simon Armstrong, Centralia, Kan., has bought the garage of William Burdett & Son.

O. B. Neptune, Concordia, Kan., has bought the Meridian garage, Belleville, Kan.

Austin Kimsey, Howard, Kan., has bought a half interest from Edwin Barber in the latter's garage.

Judge Irwin, Kincaid, Kan., has bought the Caldwell Garage Building.

Charles Hargias and J. L. Beets, Pittsburg, Kan., have formed a partnership and bought the Central Garage.

New Garages

Will Rogers (addition) .....Claremore, Okla.
T. P. Cain Motor Car Co.....Topeka, Kan.
Shepard & Mathews.....Paola, Kan.
Chas. L. Guerin.....Jetmore, Kan.
Wm. Opperman.....El Dorado, Kan.
Rex Welty .....Hill City, Kan.
V. H. Griffith .....Oberlin, Kan.
Frank Dwyer.....Altamont, Kan.
Phil Metzker.....Holton, Kan.
Miller & Schroeder.....Osage City, Kan.
Florman & Brubaker.....McPherson, Kan.
Fred Hasse.....Hays City, Kan.
Druce & Sides.....Farmington, Mo.
A. E. Norman .....Chillicothe, Mo.
Shock & Stillwell.....Warrensburg, Mo.
Crewson & Petty.....Versailles, Mo.
Ernest Schulte.....Washington, Mo.
S. W. Barr.....Rich Hill, Mo.
Culver Bros.....Plattsburg, Mo.
Martin-Reo Co.....Coleman, Tex.
J. L. Nisbet.....Ozone, Tex.
C. C. Tribble .....Yoakum, Tex.
Arrington & Love.....Clarksville, Ark.
Freeman & Freeman.....Little Rock, Ark.
Delos Wade.....Tahina, Okla.
A. Lahr.....Tulsa, Okla.
Houston Auto Co.....Comanche, Okla.
O. L. Zook.....Buffalo, Okla.
Harry Kitte.....Muskogee, Okla.
John Sallaska .....Weatherford, Okla.
E. Nicodemus .....Tulsa, Okla.
St. Joseph Stockyard.....St. Joseph, Mo.
Heiman Bros.....La Verne, Okla.
C. L. Levisay.....Caddo, Okla.
John Lumbard Tire & Supply Co., Bartlesville, Okla.
W. F. Hogan.....May, Okla.
O. J. Church.....Woodward, Okla.
Porter & Taylor.....Ryan, Okla.
Mathews & McBryde.....Berlin, Okla.
Ryan & Everett.....Ryan, Okla.
W. G. Reynolds.....Mansfield, Mo.
Newton County Hardware Co..Neosho, Mo.
Loren Hodges.....Washington, Mo.
W. G. Reynolds.....Mansvield, Mo.
B. E. Robertson.....Grant City, Mo.
J. E. Gentry .....Louisiana, Mo.
G. B. Gunter .....Caruthersville, Mo.
Neosho Auto Company .....Neosho, Mo.
A. E. Dale.....Ridgeway, Mo.
Henry Hautbauer.....Washington, Mo.
Whitaker & Whitaker.....Bartlesville, Okla.
Tipps & Tucker.....Kiowa, Okla.
W. G. Ashton.....Pawhuska, Okla.
C. W. Sears.....Cleo, Okla.
Wigton-Beck Motor Co.....Nowata, Okla.
Geary Motor Co.....Geary, Okla.
H. Havener.....Solomon, Kan.
Wesley Baldwin.....Friend, Kan.
A. Garlitz.....Wichita, Kan.
Independence Motor Co...Independence, Kan.
Dr. Anderson.....Victoria, Kan.
Fairbanks, Dexter & Filley, Irving, Kan.
Skaer Motor Co.....Augusta, Kan.
Frank Hayes.....Hunter, Kan.
Ray Griffin.....Burlington, Kan.
Miller .....Sabetha, Kan.
Mack Mastin.....Lost Springs, Kan.
Dale Hollister Motor Co....Emporia, Kan.
Songer & Rowe.....Severy, Kan.
R. Z. Blackburn.....Strong City, Kan.
Barnett & Barrick.....Coffeyville, Kan.
Packard Motor Car Co.....Topeka, Kan.
Payne & Greening.....Sabetha, Kan.
Nagelvoort-Stearns Cadillac Co., Hutchinson, Kan.
George M. Byal.....Ness City, Kan.
Kansas Motor Car Co.....Wichita, Kan.
Chenault & Wheat Co...Wichita Falls, Kan.
Bliss Motor Co.....Russell, Kan.
E. W. Davis.....Morrill, Kan.

MIDDLE WEST

A. J. Ihrke, Omro, Wis., Ford dealer, has taken occupancy of his new garage and service station, erected at a cost of about $15,000.

Badger Storage Battery & Supply Co., Milwaukee, has been organized to distribute the Detroit battery in Milwaukee and vicinity. H. G. Schmidt has been appointed manager.

Davis Motor Car Co., Ashland, Wis., Reo dealer in Ashland and Bayfield counties, has acquired the garage and repairship of George W. White and will build an addition costing about $7,500.

Willard Storage Battery Co. of Chicago has established a branch house and service station at Wausau, Wis., in charge of James Salay.

E. H. Wilcox & Son, Lansing, Mich., have purchased the Tracy Auto Tire Repair Co. at 318 East Michigan Avenue. The firm name has been changed to the Auto Tire Repair Co.

Jefferson Garage, Bryan, Ohio is now operated by H. H. Boucher, his partner having enlisted to serve Uncle Sam.

A. L. Krider Motor Works, Montpelier, Ohio, are enfering business in a new two-story front, brick and tile building (28x132). They will handle the Regal car and do general garage and repair work.

Carl McEwen, Leonidas, Mich., has purchased the garage formerly owned by Thomas Crawford.

W. E. Sugden, Bancroft, Mich., has discontinued repair work and moved to a new location, where he will rebuild and charge storage batteries and also repair magnetos, starters and generators.

The Sheboygan (Wis.) Auto & Supply Co. has changed its name to the Raab-Thieman Co. It has increased its capital stock from $15,000 to $30,000. Arthur F. Raab is president and Robert H. Thieman is secretary-treasurer. The company is Ford dealer at Sheboygan.

Cornelius Swartout, Aledo, Ill., has moved into a new garage of two stories. A sales agency will be maintained in addition to a repair and storage department.

Koebel & Bennett, Muskegon, Mich., has been taken over by a new company known as the Muskegon Overland Co. Koebel & Bennett will retain the Curtis tire service station at Clay Avenue and Second Street.

Post Tavern Garage, Battle Creek, Mich., has been formed by Lou Boomhower and J. B. Bryant, and is carrying a line of accessories.

George H. Warner has purchased the Killeward Garage, Mount Clemens, Mich.

R. J. Garrow, Cadillac, Mich., has taken over the Ford agency formerly held at Manton for six northern Wexford townships and two Missaukee townships and will establish a garage and salesroom at Manton in the near future.

City Garage, Marquette, Mich., managed by Klinglund & Blook, has moved from Lincoln Street to the Neely Block on Iron Street. The firm has the agency for the Studebaker, Paige and Dort cars.

Heaton & Hooper Co., Buick dealer, Boyne City, Mich., has purchased the old Garland Hotel site on Lake Street, where a garage will be built immediately.

Dixie Garage, Dodge dealer, Holly, Mich., operated by J. R. Inskeep, is now opened with a full line of tires and accesories.

John I. Miner, Portland, Mich., will operate the garage lately occupied by Glenn W. Heliker.

Miller-Elgin Sales Co., Jackson, Mich., will move to Grand Rapids, Mich., in a few weeks.

F. E. Lindsey, Quincy, Mich., has purchased the interest of his partner, Frank Francisco, in the F. & F. Garage and will continue the business alone.

C. A. Robinson, Dwight, Ill., formerly connected with the O. H. Naffziger Motor Car Agency as sales manager, has purchased an interest in the business, and the firm will hereafter be known as Naffziger & Robinson. It is proposed to enlarge the garage and the various departments.

Fred I. Ellis, Canton, Ill., has purchased the interest of L. R. Snyder in the Snyder & Ellis Garage and will hereafter conduct the plant alone.

Electric Service Station, Decatur, Ill., has moved into a new garage.

R. B. Shaw, Decatur, Ill., has moved into a larger building at 336-342 East Main Street.

Archbold Garage, Archbold, Ohio, has been purchased by F. M. Pelton.

Davis Motor Sales Co., Toledo, Ohio, Buick distibuter, has purchased two plots of ground, each 100 x 100, one on Twelfth Street and the other on Thirteenth Street. Buildings will be erected on this property doubling the capacity of the station.

Cleveland-Oakland Co., Cleveland, Ohio, has moved into the building at 1975 East Sixty-fifth Street, which will be the permanent home of the Oakland. The retail company occupies the first floor, and the wholesale headquarters are on the second. The building has 20,000 ft. of floor space.

Tire Shop, Youngstown, Ohio, has taken over the agency for Firestone tires which the Diamond Tire Agency formerly controlled, J. E. McGinnis having retired from the Diamond company.

Kelly-Springfield Tire Co.'s, Akron, Ohio, local Youngstown, Ohio, branch will be located after Dec. 1 at Ridge Avenue and Market Street.

George E. Brown, Lexington, Ill., has purchased the garage operated for several years by Homer Jones, who will retire to engage in farming.

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Conrad Motor Co., Eureka, Ill., has sold the garage and sales agency operated for several years to the Moutier Bros., Peoria, Ill. The latter will operate the plant as a branch and will make a number of improvements.

E. J. Weese, Lewiston, Ill., has leased the Crescent Machine Works building on South Mechanic Street, and will remodel it for a garage and sales agency. Mr. Weese has been conducting a garage at Ipava for several years.

New Garages

Walter Tatti (20x32, $800).....Detroit
Bryant & Ditwiler (45x56x13, $2000), Detroit
E. H. Welling ($1200).....Toledo
Phillips Garage (addition), Battle Creek, Mich.
Independent Garage (addition), Battle Creek, Mich.
Henry G. Patteen (50x100)....McClure, Ohio
Frank C. Krohne.....West Allis, Wis.
S. A. Peterson & Co.....Stoughton Wis.
Lucia Motor Car Co. (125x160), Green Bay, Wis.
Theodore Weinand.....West Bend, Wis.
Acme Garage Co. (34x66)..Platteville, Wis.
Cornelius Swartout.....Aledo, Ill.
Motor Car Sales Co.....Bloomington, Ill.
H. Pierce and J. Caldwell (50x150), Decatur, Ill.
L. J. Gilmore and A. J. Hansen, Bloomington, Ill.
J. O. Holmes and H. Irwin....Decatur, Ill.
R. B. Shaw.....Decatur, Ill.
E. J. Weese.....Lewistown, Ill.
O. L. Langellier Motor Co.....Lincoln, Ill.
A. H. Bryant.....Tuscola, Ill.
L. J. Gilmore and A. J. Houser, Bloomington, Ill.
Motor Car Sales Co.....Bloomington, Ill.
George E. Brown.....Lexington, Ill.
Montier Bros.....Eureka, Ill.

NORTHWEST

Ed Wolken, Frank Fritton and George Reininger, Leigh, Neb., have bought the garage of Vlach & Tesar.

Bassett Bros., Parkham, Wyo., have chester, Wyo.

G. O. Fairchild, Bertrand, Neb., has bought the Thorell-Matson Garage, Loomis, Neb.

bought the garage of Hogan & Shanor, Ran-

E. J. Huey, Omaha, Neb., has bought the Smith & Son Garage.

Max Wolfe, Benkleman, Neb., has bought the interest of his partner in the Stevenson & Wolfe garage.

W. A. Hall, Madison, Neb., has bought the Remender Brothers Garage.

W. E. Zeman, Scribner, Neb., has sold his interest in the Boll & Zeman Garage to his partner, who becomes sole owner.

Emerson McLaughlin, Moorefield, Neb., has bought the Stockville Garage.

Craig & White, Utica, Neb., have bought the Corey Garage, Beaver Crossing, Neb.

Barton Brothers, Taylor, Neb., have bought the Wirsig Garage.

Clarence and Fred Rucker, Centerville, Ia., have bought the garage of George Pierson.

A. H. Hartman, Manchester, Ia., has bought the garage of T. F. Donnelly, Coggon, Ia.

Mack McKone, Laramie, Wyo., has sold his garage and retired from the business.

C. A. Maze, Rulo, Neb., has bought the Codington & Furlong Garage, Auburn, Neb.

Van Huss Antill, Blair, Neb., has leased the Warrick Auto Co. Garage.

Roy Rousch, Friend, Neb., has bought the tire repairshop of Hassen Wood.

George Scholl, Wynot, Neb., has bought the garage of Henry Jurgens, Jr.

T. R. Blank, Franklin, Neb., has bought the garage at Upland and will make it a Ford station.

John Bell, Fairbury, Neb., has bought the interest of Charles Juhnke in the Junhke & Bell Garage.

Matthew Morrisey, Tecumseh, Neb., has bought the Ambrose garage at Schuyler, Neb.

Homer Phelps, Surprise, Neb., has bought a half interest in the Eilett Aden Garage, Selby, Neb.

R. A. Craddock and R. A. Robinson, Anita, Ia., have bought the Yarger Garage, Massena, Ia.

Fred J. Tilden, Charter Oak, Ia., has bought the garage of L. F. Lorentzen.

William Gibson, Denison, Ia., has bought a half interest in the garage of Bruce Rogers.

Samuel Shaw, Hancock, Ia., has bought the Ira Greever Garage.

Leslie Larson, Kiron, Ia., has bought a half interest in the Kiron Auto Co. from Charles Sjogren.

Lynn H. Rengier, St. Edwards, Neb., has bought the garage of Stalker Brothers, Albion, Neb.

F. J. Stahl, Grafton, Neb., has bought the Wilson Garage.

George W. Kimball, Holdrege, Neb., has bought the interest of H. J. Meisner in the Willard service station.

Earl Pyzer, Ohiowa, Neb., has bought the interest of his partner in the Pyzer & Dobbins Garage.

Robert Garnatz, Auburn, Ia., has bought the garage of John R. Grey.

William Hayes, Gilmore City, Ia., has bought the garage of H. W. Heath.

Clarence Peckinpaugh, Smithland, Ia., has bought the garage of Birney Clubine, Mapleton, Ia.

Cook & Kimberlin, Funk, Neb., have bought the Funk Garage.

Louis Kuhn, Farwell, Neb., has bought the Buick Garage.

J. A. Hunting, Lincoln, Neb., has bought the A. B. A. Garage.

W. W. Jenkins, Clarksville, Iowa, has sold his garage and will enter the mercantile business.

J. W. Gotobed, Red Oak, Iowa, has bought the Independent Auto Co. from C. A. Johnson.

L. L. Ellis, Arthur, Iowa, has sold his automobile business to E. W. Whealen, Schaeller, Iowa.

Harry Mullarkey & Co., Charles City, Iowa, have bought the Haynes Auto Supply Co.

Elmer Young, Winterset, Iowa, has bought the vulcanizing business from L. H. Hillis.

H. E. Olsen, Pomeroy, Iowa, has bought a garage at Harcourt, Iowa, but will not take possession until spring.

Chet Ryder, Estherville, Iowa, has bought out the interest of his partner in the Ryder & Karr Co.

E. E. Graham, Grinnell, Iowa, has bought a half interest in the White Star Filling Station.

Fred Jay, Whitewood, S. D., bought the National Garage and stock of cars from D. J. McDonald.

Jul Hammer, Maddock, N. D., sold his garage to Simon Hesteness.

Clarence Bjornebye, Edinburg, N. D., bought the garage owned by B. H. Stary and Walter Dougherty.

Splinter & Cowan, Madelia, Minn., sold their garage lease to E. G. Shellum, Ormsby, Minn.

H. O. Rice and Malvin and Edward Vinve, Clyde Park, Mont., sold the Clyde Park Garage to C. F. Cowan of Livingston, Mont.

Frear & Gericke, Hardin, Mont., bought the Auto Repair & Accessories Co. and leased the entire building.

Henry Hughes and Otto Gildmeister, Grand Rapids, Minn., took over the former Erskine-Logan Garage and will operate it as a Ford station.

Lemmon Auto Co., Morristown, S. D., will open a Ford station.

Dave Strohman, Sigourney, Iowa, has moved into larger quarters.

Ralph Currier, Eddyville, Iowa, has bought out the interest of his partner, Neil Turner in the Eddyville Garage.

Steichen Bros., Alton, Iowa, have sold their garage to C. De Muenck and A. De Maine.

New Garages

J. H. Breene.....Lebanon, S. D.
Patterson & Nelson (50 x 70)..Roseau, Minn.
August Fischer .....Oronoco, Minn.
Ole Hammerness .....Holt, Minn.
Ed Lloyd and James Blair (75x115), Dillon, Mont.
Lake Crystal Auto Co....Lake Crystal, Minn.
Robert Isenberg.....St. Peter, Minn.
Peck & Sullivan.....Ironton, Minn.
Standard Oil Co.....Mankato, Minn.
I. H. Klein.....Northfield, Minn.
Sid Stredwick..... Logan, N. D.
C. C. Livingston.....Hettinger, N. D.
W. R. Eckley .....Mabel, Minn.
William Nelson.....Vernon Center, Minn.
Wheeler & Archibald.....Deerwood, Minn.
William Leenan.....Avoca, Ia.
J. J. Klein.....Mobridge, S. D.
Red Oak Auto Co.....Grant, Ia.
Sioux Falls Reo Co.....Sioux Falls, S. D.
J. J. Basta.....Brainard, Neb.
Byrum & Bendel.....Bloomington, Neb.
The McMillan Co.....Anoka, Neb.
Lonaker & Noah Co.....Knoxville, Ia.
Verdon Motor Co.....Pierre, S. D.
Valentine Auto Co.....Valentine, Neb.
O. G. Rorgo.....Mobridge, S. D.
Frank Kisor and R. Dufus, New Sharon, Ia.
Fluckiger Motor Co ($25,000)...Dubuque, Ia.
Stein & Holdren (addition)....Manson, Ia.
A. E. Wittman (addition).....Humboldt, Ia.
George Bloomer (48x78).....Winfield, Ia.
George Hoegh .....Brayton, Ia.
R. K. Luse.....Oxford, Ia.
Eberhart & Young.....Toledo, Ia.
E. H. Dodd..... .....Grundy Center, Ia.
Vaughn Bros. ($10,000).....Bloomfield, Ia.
Mid-west Motor Co.....Cedar Rapids, Ia.
F. W. Woellhaf ($12,500)....Burlington, Ia.
Layman Bros.....Storm Lake, Ia.
Anaconda Motor & Supply Co. (50x140), Anaconda, Mont.
Shuey Motor Co. (115x125, $20,000), Miles City, Mont.
Ed Lloyd and Jas. Blair (75x115, $10,000), Dillon, Mont.
Beaverhead Motors Co. (50x115).Dillon, Mont.

PACIFIC COAST

White & Alden, Tacoma, Wash., has opened a service station and repair shop at 1014 South K Street.

Logan-Bates Co., Spokane, Wash., is now the name of the firm formerly known as the Chalmers Auto Co., O. E. Logan having purchased a half interest in the company.

New Garages

Arlington Motor Co.....Arlington, Wash.
Wood & Lane (100x120, $25,000), Walla Walla, Wash.
Twin City Auto Co. (remodelling), Chehalis, Wash.
B. B. Garage.....Bellingham, Wash.
Parker & Banfield.....Portland, Ore.
Commercial Securities Co. (75x100), Seattle, Wash.

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Requisition Is Shop Check

As Necessary to Shop Operation as Check Is to Banking

Prices: Duplicate, $9 per 1000; triplicate, $13.50 per $1000.

A REQUISITION form is a necessity for two reasons:

First, it minimizes errors in charging goods to customers.

Second, it shows where parts and supplies from the stockroom have gone.

The Requisition is made out by the workman, signed by the foreman and is filled by the stockroom clerk.

The parts and supplies in the stockroom may be compared to money in the bank, in which case the Requisition is the check which is drawn by the workman, authorized by the foreman and cashed by the stockroom clerk. Imagine trying to conduct a banking business without checks and you have a situation no more absurd than trying to operate a repairshop without requisition forms.

In passing it may be well to mention that the Inventory Card described in the Oct. 17 issue, page 14, corresponds to the bankbook.

There is only one exception to the general desirability of using requisitions. In a very small shop where the head mechanic is also foreman, stockkeeper and possibly owner besides, it may be sufficient to record the issuing of material and supplies on the back of the Repair Order described in the Nov. 7 issue, page 12. Or if this form is not used some other form should be employed which enables this to be done readily.

To illustrate clearly how the Requisition is used let us assume that Bill, who is working on a Hudson Super Six, gets to the point where he needs 2 lbs. of transmission grease. He makes out a requisition describing the goods and in the quantity column he marks "2 lbs." He takes this to the foreman, who O.K.'s it, then he goes to the stockroom and gets the grease. He signs the form at the bottom on the line "Received By" so that if any question arises as to whether the grease was delivered the stockroom clerk may turn to his file and prove it.

A little later Jack wants a new bevel pinion for the car he is working on, and he makes out a Requisition. So that there can be no misunderstanding as to the exact pinion wanted, it is necessary to specify the number as given in the parts book. Inasmuch as Jack does not know this he leaves it out until he gets to the stockroom, where either he or the stock clerk looks the part up and inserts the correct number. The quantity in this case would be 1.

The part number is also necessary so that the correct cost can be charged. This item is set down in the column next to the Quantity column and may be done by the stockroom clerk.

The price to the customer is also inserted, and if there is more than one article, the total cost and the total price to the customer are also written in by the clerk.

Several articles may be requisitioned at one time on the same slip, in which case the total price should be noted at the bottom of the slip.

This form may be made out in duplicate or triplicate. If it is in duplicate the foreman will retain the duplicate, the workman taking only the original to the stockroom, in which case it will be necessary for the stock clerk to forward this slip to the accounting department so that the purchases may be entered on the back of the Repair Order form, or if some other form is used, on that form.

The objection to the duplicate is that it does not give a complete file of Requisitions for the stock clerk. An alternative method, using duplicates, would be to forward both copies to the stock clerk so that he might retain one and send the other to the office. This has the objection that the foreman has no record of supplies purchased.

For these reasons it may be desirable to use a triplicate form, the foreman holding the triplicate, the stock clerk the duplicate and the office the original.

Probably the easiest way to handle the matter is for the workman to take the original and the duplicate to the stock clerk, who should forward the original to the office. However, in some cases it might be simpler and more effective to use a system whereby the original was forwarded directly from shop to office.

In order that the office may be in a position to make out a statement on short notice it is necessary that the Requisitions be delivered as soon as possible after they are made out.

Requisition No. 6314

_____ 191___ Job. No._____

Part No.	Description of Goods	Quantity	Cost Each	Total Cost	Price Each	Total Price
	Total					

Received by_____

Prices on Motor World Forms

All prices include delivery. All forms are standard size to fit files. Binders for the Repair Order, Requisition, and Purchase Order cost $2.25 each.

Form	Issue	Page	Material	Size	Remarks	Quantity	Price
Inventory Card	Oct. 17	14	Card	5x8	Both sides	100	$1.50
			Card	4x6	Both sides	1000	13.50
Prospect Card	Oct. 24	10	Card	4x6	Both sides	500	4.00
						1000	7.50
Repair Order	Nov. 7	12	Paper and Manila	6x9	Triplicate	1000	25.00
						2000	37.50
Workman's Time Card	Nov. 14	38	Manila	3¼x5½		1000	4.50
Job Time Card	Nov. 21	14	Card	4x6		500	3.50
						1000	6.50
Requisition	Nov. 28		Paper	5x8	Duplicate	1000	9.00
					Triplicate	1000	13.50
Purchase Order	Dec. 5		Paper	5x8	Duplicate	1000	15.00
					Triplicate	1000	22.00
Casing and Tube Record	Dec. 12		Card	4x6	Both sides	1000	7.50
Garage Tag, Tire Tag, Battery Tag, Universal Tag	Dec. 17		Card		Three sections	1000	8.50

Motor World Simplified System of Accounting, $15. Extra sheets $2 per 100.

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Accessories

VACUUM MUFFLER

This muffler is a radical design which, it is claimed, will reduce the back pressure even below that obtained with an open exhaust pipe. In a recent test by Joseph Tracy, consulting engineer, he reported that more horsepower with a reduced fuel consumption was obtained with this muffler than when the car was operating without any muffler.

Here are the results of the test:

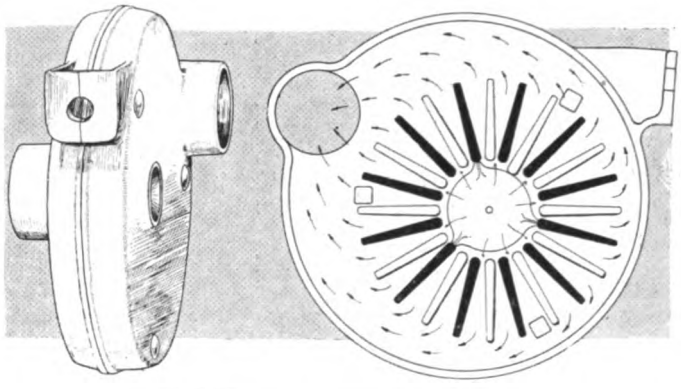
White motor (no muffler) exhaust carried to the atmosphere through 15 ft. of 2½ in. diameter pipe.

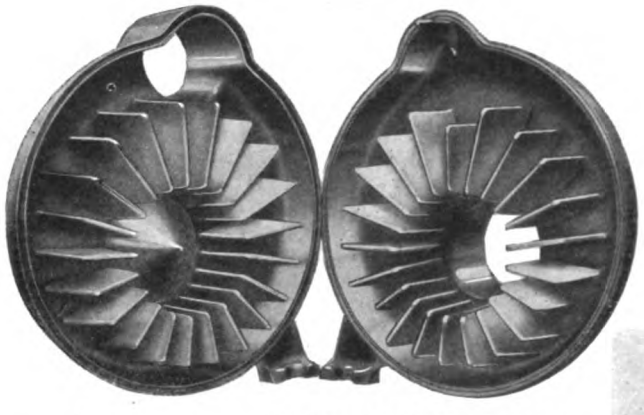
R.P.M.	H.P.	Lbs. fuel per H.P. per hr
500	11.7	.67
600	14.2	.68
800	19.2	.70
1000	24.5	.65
1200	29.4	.61
1400	32.9	.64
White motor with Vacuum muffler		
500	11.6	.69
600	14.5	67
800	20/	.61
1000	25.2	.62
1200	29.1	.61
1400	32.9	.61

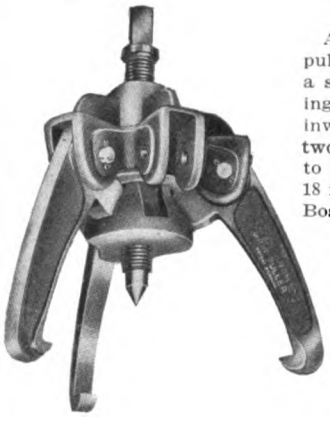
The muffler is small and light and since it is made of cast iron it will not rattle. Passages are free and there is no chance of carbon collecting. Notwithstanding its simplicity it performs its function perfectly. The gas from the engine enters the muffler through the center and it expands as it moves out through the wedge-shaped passages to the discharge opening on the circumference. It will be seen that each discharge of gas is broken up into twenty-four puffs by the twenty-four passages, and due to the fact that the length of pathway from each passage to the discharge opening of the muffler is different these puffs do not reach the opening at the same time, but one after another so that noise of the explosion is entirely broken up. Price $3 for the Ford size and up to $6 for the other cars.—Vacuum Muffler Corp., Tribune Building, New York.

PRISMOLITE WHIRLING FLAG

A flag in colors which whirls with the motion of the car. Price $1. — Prismolite Co., Columbus, Ohio.







BEECH AUTOMATIC RIM PULLER

A three-legged adjustable puller in which the turning of a screw not only applies a pulling force but it draws the jaws inward. It is furnished with two sets of jaws, 7½-in. opening to 10 in., and 12-in. opening to 18 in. Price, $15.—The Greb Co., Boston, Mass.



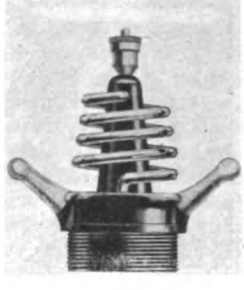
ROEDDING REAR SIGNAL

Through a typographical error the Roedding signal tail light, distributed by K. G. Barkoot, 1010 Chamber of Commerce Building, Detroit, Mich., was spelled Redding in the description which appeared in last week's issue of Motor World, page 35. It is a cylindrical signal light thrown from the wheel in which the words, stop, left, right and back appear. It is sold for $18.

BURKE CONDENSER

Loss of anti-freezing liquid or cooling water is prevented by the Burke condenser, which employs the vapor which usually passes down to the atmosphere through the overflow pipe. The condenser is screwed in place of the filler cap and the overflow pipe is stopped up. Not only does it prevent the loss of anti-freezing fluid, which is in itself serious, but it also maintains the original proportion if none is allowed to escape, thus the fluid is always at original effectiveness. If steam is generated a relief valve in the top opens instantly, allowing it to escape. The condenser reduces the amount of scale deposited in the cooling system, and this is important where water heavy with minerals is used. Inasmuch as practically no water escapes, the amount of mineral water is not increased by the boiling down of the water.

The condenser consists of a tube coil which is exposed to the air and which is carried on what amounts to an extension of the filler opening. In adding water to the system it is not necessary to remove the condenser, but simply the radiator cap at the top. Price, standard model, $10; Little Giant, $5.—Automobile Devices Co., 619 Sansom Street, Philadelphia.





AKSALA ANTI-FREEZE

It is designed to be a perfect anti-freeze solution. It does not harm rubber or metal, has a freezing point of 45 deg. below zero and a boiling point of 256, which is so high that evaporation is practically nothing. The following report was made by Professor Gebhardt, M. E., the Armour Institute of Technology, Chicago: Boiling point, 256; freezing point, runs fairly fluid, minus 15 deg.; flows slowly, minus 23 deg.; flows very slowly (chill point of oil but not frozen), minus 45 deg. In a comparison between Aksala, wood alcohol and denatured alcohol, a small amount of each fluid was exposed to the air for 8 days, at the end of which time all the wood and denatured alcohol had evaporated, while there was no appreciable evaporation of the Aksala. Price $1.25 per gallon.—Aksala Co., 7430 S. Chicago Avenue, Chicago.

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A Department of

BETTER MECHANICS

No. 45

Installation and Care of Gray & Davis Starting and Lighting System for Fords

By S. T. Williams

THIS is the third of a series of articles to be published in Motor World dealing with the installation of standard accessories. The articles will contain complete instructions to help the repairman to do his work properly. The fourth article will appear in an early issue.

BEFORE starting on the installation of the Gray & Davis system, the car should be placed in the best possible running condition. The engine should be firing regularly without missing, the carbureter should be in adjustment and the commutator should be clean and in good condition.

The following are the steps in sequence in installing the system and should be followed in the order shown in Figures 1 to 13 inclusive.

PREPARATION

See Fig. 1

1. Push car to place.
2. Place starter on bench for inspection.
3. Gather all common shop tools, such as screwdrivers, pliers, hammers, etc.
4. Check list of parts to see that none are missing and place them beside the car.
5. Remove engine hood.

PRELIMINARY TEARING DOWN

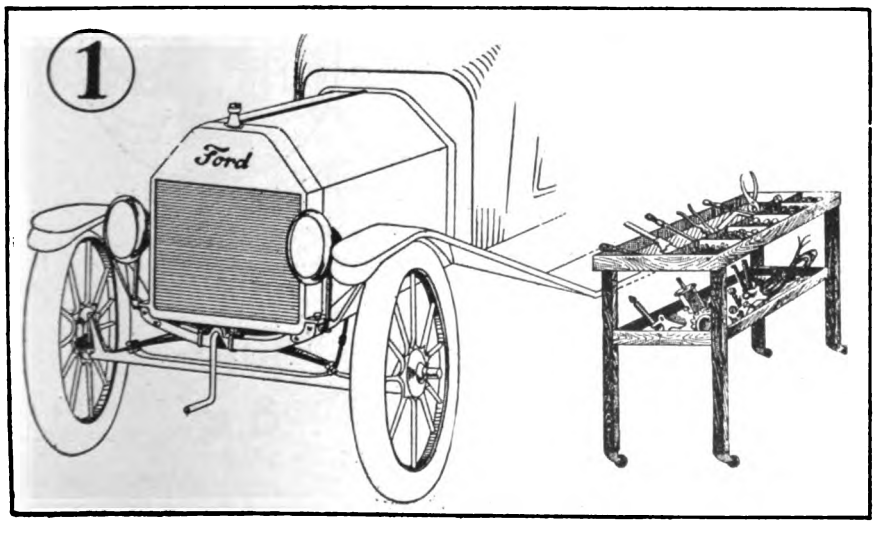
See Fig. 2

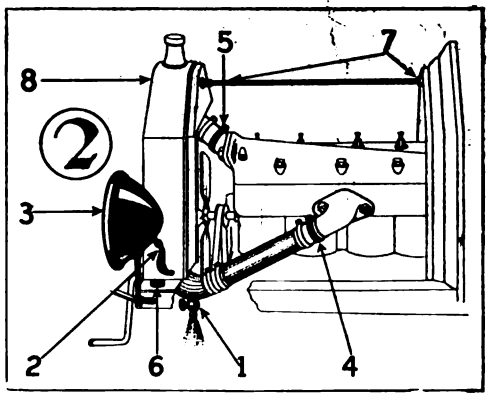
1. Drain radiator.
2. Remove wires to headlights.
3. Remove headlights.
4. Loosen upper hose clamp on water connection.
5. Loosen lower hose clamp on top water connection.
6. Remove the two radiator retaining nuts.
7. Remove radiator dash tie rod.
8. Remove radiator.

PREPARING THE ENGINE

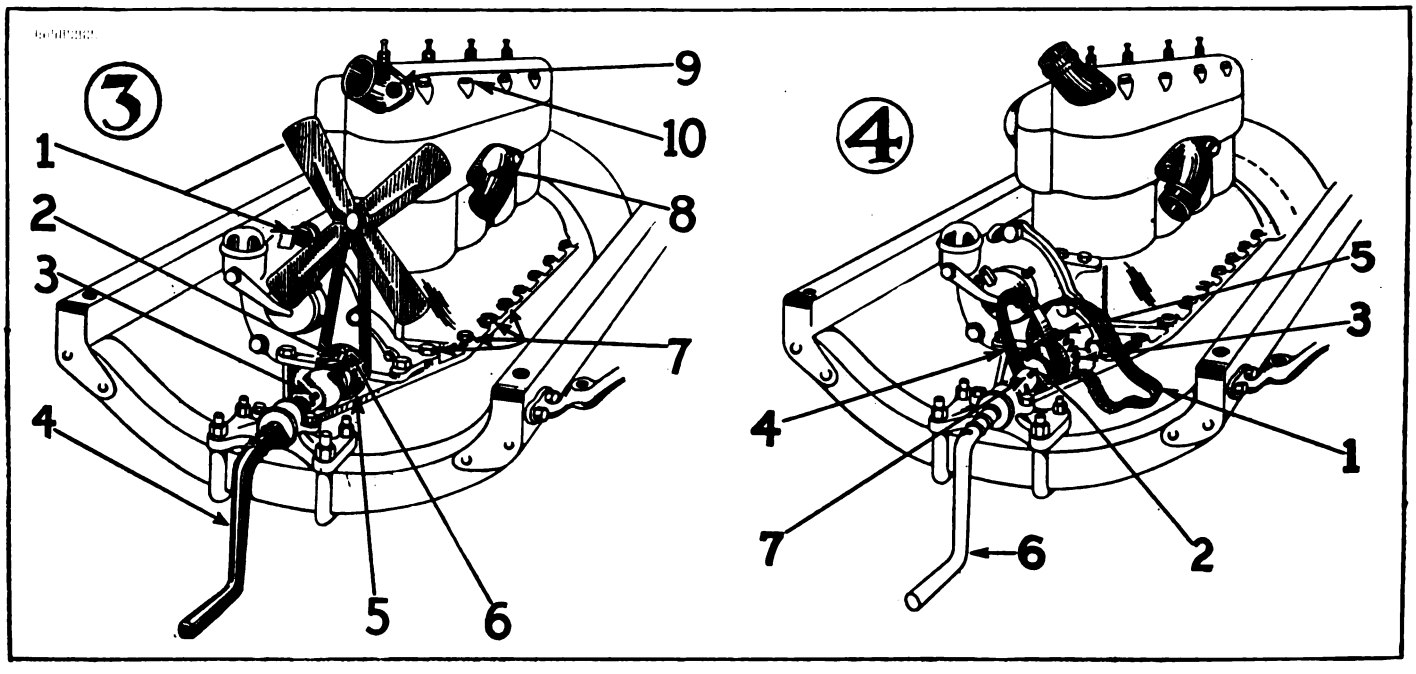
See Fig. 3

1. Remove fan bracket and fan.
2. Crank engine until the pin in the fan pulley is straight up and down.
3. Drive out the pin in the jaw clutch.
4. Remove starting crank.
5. Remove fan belt.
6. Remove cotter pin and pin from the fan pulley and remove the pulley.
7. Remove the second, third, fourth and fifth bolts from the crankcase flange.
8. Remove the front bolt from the side water connection.
9. Remove the left hand bolt from the top water connection.





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10. Remove the second cylinder head bolt on the left.

Preliminary Installation

See Fig. 4

1. Place the chain at the rear of the engine support around the crankshaft.
2. Place the Ford starting crank jaw clutch inside of the crankshaft sprocket.
3. Place the crankshaft sprocket on the crankshaft.
4. Slip the new fan belt in place.
5. Secure the sprocket with the pin provided for that purpose.
6. Replace the starting crank.
7. Secure the jaw clutch to the starting crank with the pin provided.

Inspection of Motor Generator

See Fig. 5

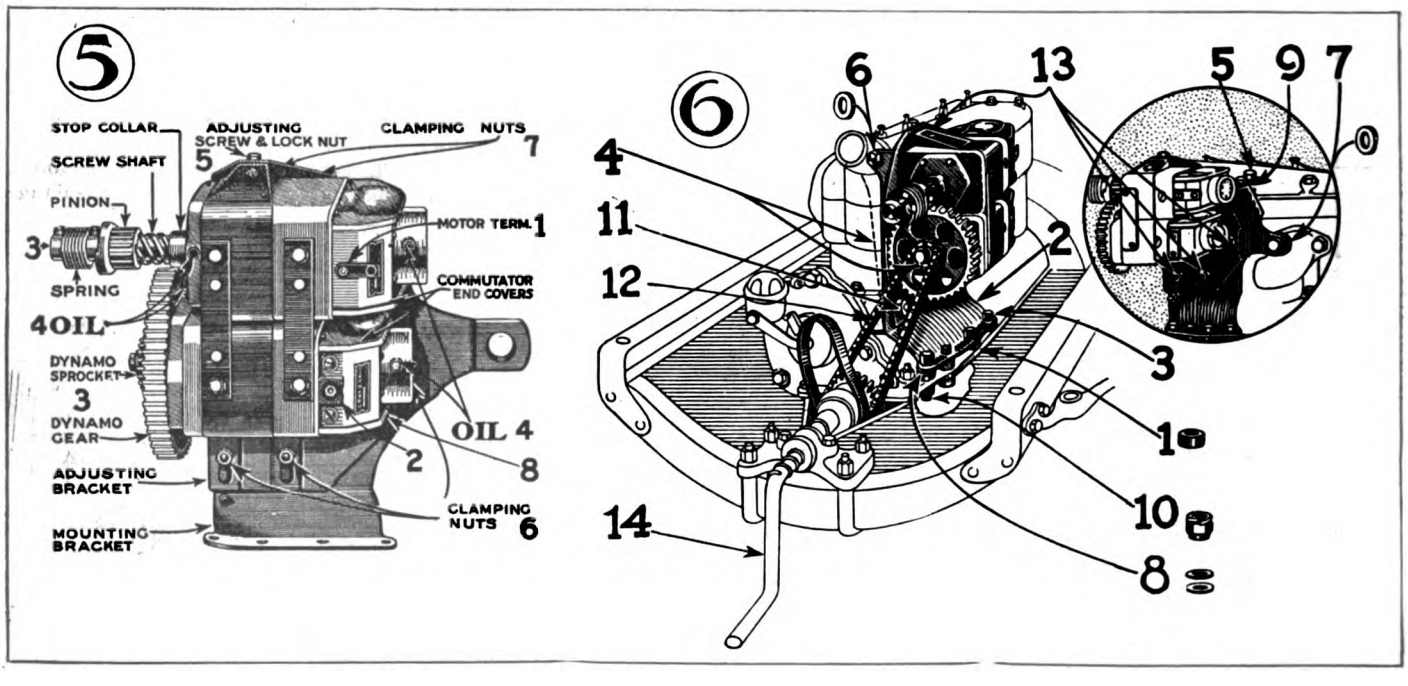
1. See that the motor terminal (marked 1) is free from contact with other metal.
2. See that the dynamo terminal and insulation is not injured.
3. See that all rotating parts turn easily.
4. Place oil in all oil cups.
5. Release the top adjusting screw slightly.
6. Loosen the two lower clamp locknuts at the front.
7. Loosen the two upper clamp locknuts at the rear.
8. Loosen the one middle clamp locknut at the front slightly.

Inasmuch as chain adjustment is necessary after some service, and this adjustment is effected by sliding the units upward on the adjusting bracket, it is essential that they be placed in the lowest possible position on the bracket before being attached to the car.

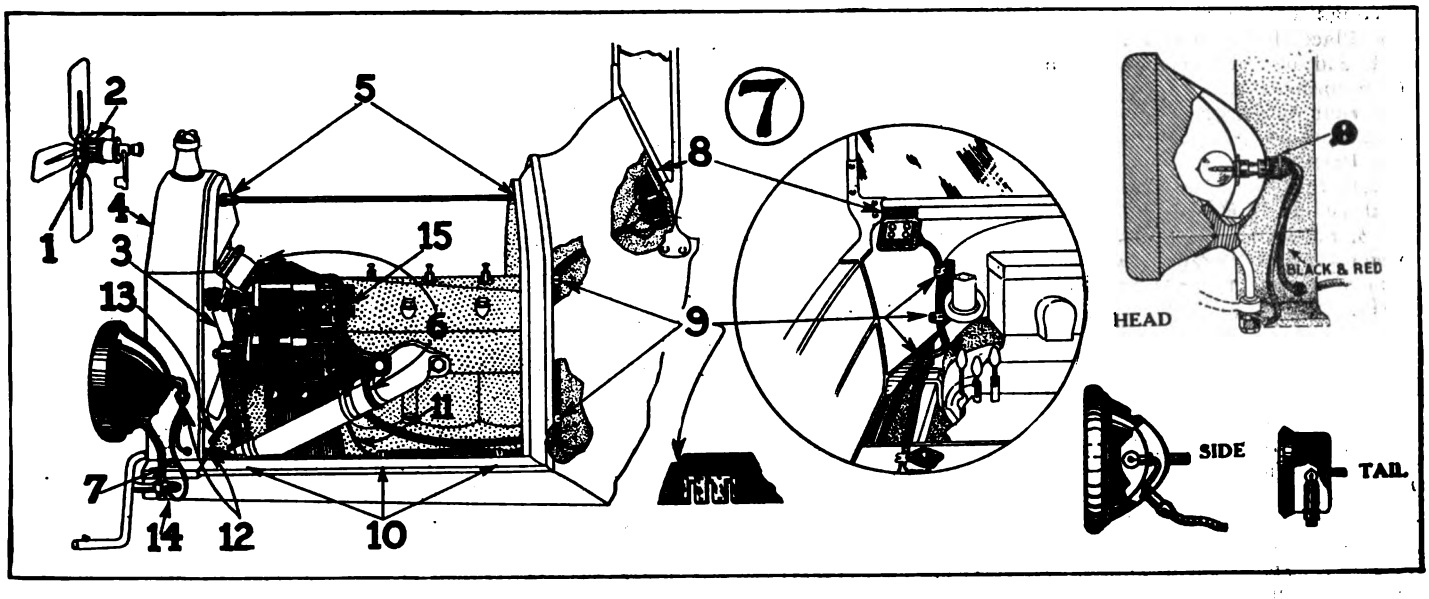
Attaching the Unit

See Fig. 6

1. Place three spacers ⅜ in. long over the first, second and third holes in the crankcase flange.
2. Place the unit in position on the car.
3. Pass the ⅜ by 2½-in. bolts through the lower bracket, but do not put on the nuts.
4. Tap the unit forward and slide the driving chain in place.
5. Attach the bracket with a cylinder-head bolt but do not tighten.
6. Place the 13/32-in. spacer between the bracket and the top water connection and bolt loosely in place with a 7/16 by 2⅝-in. bolt.
7. Place a 13/32-in. spacer between the bracket and the side water connection



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and bolt it loosely in place with a 7/16 by 2⅝-in. bolt.

8. Place 1/32-in. spacers under the bracket so that the chain will be tight when the units are in the lowest possible position.

9. Shim up the space between the bracket and cylinder-head length with washers.

10. Fasten the three lower bracket bolts with lockwashers and nuts and finally the water connection bolts Nos. 6 and 7 and cylinder-head bolt No. 5.

11. Fasten the bracket staybolt.

12. Fit the chain to a moderate tension and lock the units in place.

13. Tighten all bracket clamp nuts.

14. Crank the engine and see that it does not bind.

Miscellaneous Assembly

See Fig. 7

1. Fit the special split pulley to the fan hub.

2. Attach it in place with the four screws.

3. Slip the belt in place and attach the fan.

4. Replace the radiator.

5. Replace the radiator-tie rod.

6. Replace the hose connections.

7. Bolt the radiator in place.

8. Attach lighting switch at the cowl with 3/16-in. screws.

9. Cut a corner from the toe board for cable clearance and attach the three lighting cable slips to the dash with ½-in. wooden screws.

10. Fasten the three wire clips to the left-hand side of the frame.

11. Fasten the green wire to the dynamo terminal.

12. Connect the short brake and return the wire to the left-hand headlight.

13. Pass the long black and red wire through the radiator tube to the right-hand headlight.

14. Ground the short wire from each headlight to the car frame.

15. Connect the starting cable to the starting motor terminal. This cable is marked by a copper terminal at each end.

16. Refill the radiator.

In connecting the black and red wires to the terminals of the lamp connector follow the diagram shown in Fig. 7.

Starting Switch Installation

See Fig. 8

1. Use the switch plant as a template in drilling the holes through the heel-board.

2. Drill these holes.

3. Fasten the switch in place with one bolt at the side toward the center of the car.

4. Attach the other bolt with the cable supporting clamp holding the two wires and secure the spring and knob with its pin.

Priming Rod Connections

See Fig. 9

1. At a point 2 in. at the left of the coil box and 6 in. above the toe board on the dash drill a 7/32-in. hole.

2. Pass the upper rod through this hole and connect the lever arm vertically to the forward exhaust manifold stud.

3. Connect the lower rod to the choke lever.

Battery Installation

See Fig. 10

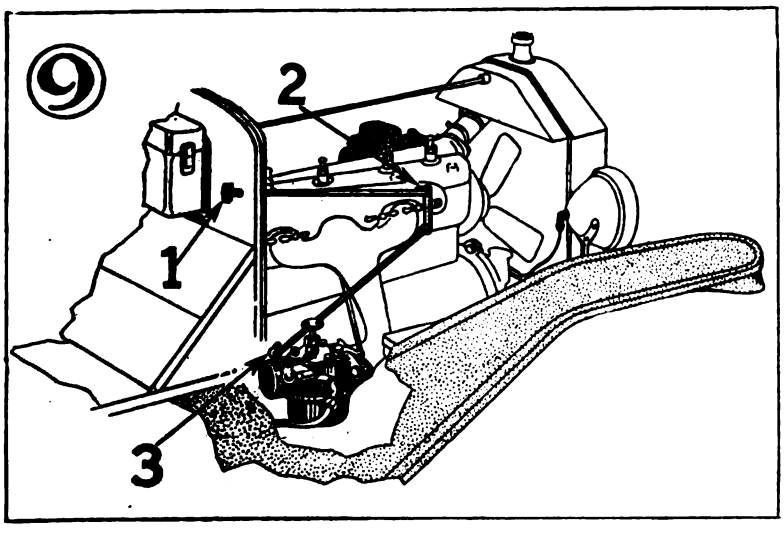
1. Place the battery on the right runningboard and mark four holes with a center punch.

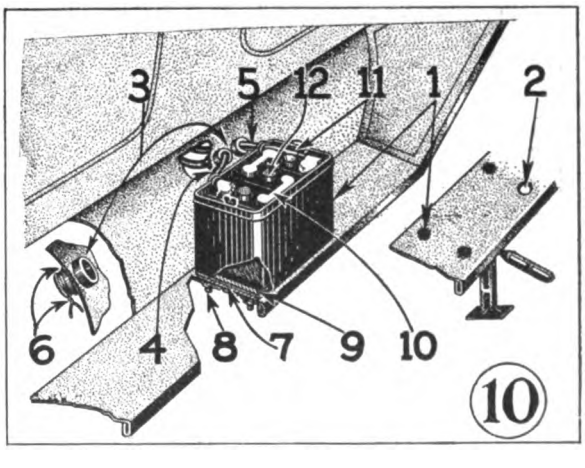
2. Drill four 11/32-in. holes through the runningboard at these marks.

3. Drill two 1⅝-in. holes in the splash plate for the insulating bushings.

4. Place the wooden insulating bushing in the left-hand hole and fasten it in place.

5. Place the insulating bushing in the right-hand hole.





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6. Secure the wooden nuts on these bushings with wire locks.

7. Place the two cleats with a hole at each end between the battery box and the runningboard.

8. Bolt the battery box to the runningboard with ⅜-in. by 1½-in. bolts.

9. Place the battery rest cleats in the battery box.

10. Slide the battery in place and put the ¼-in. wooden strips at each side between the battery and the box.

11. Attach the battery hold-down springs.

Attaching the Wiring

See Fig. 11

1. Attach the three clips holding the tail lamp wire.

2. Place the electric tail lamp in position.

3. Connect the wire to the tail lamp.

4. Connect the short battery cable and the green and red wire to the starting switch terminal on the side near the center of the car, then pass the end of the cable through the forward insulator in the splash plate.

5. Connect the long battery cable to the second gearbox bolt and secure it with a plain lockwasher, then pass the end of the cable through the rear insulator in the splash plate. This is the positive cable.

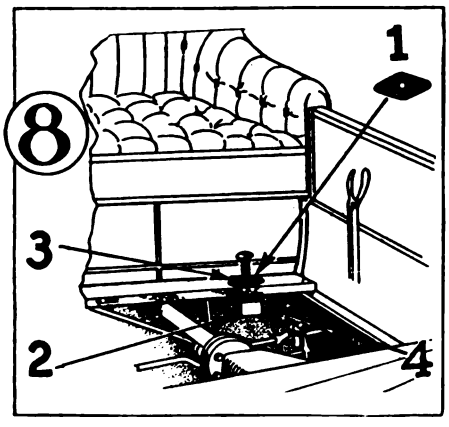
6. Connect the starting motor cable to the starting switch.

7. Support the starting motor cable to the inside curved edge of the dash at the left by a clip.

8. Pass the negative cable through the battery-box insulator and connect it to the negative battery terminal.

9. Inspect the system to see that none of the wires are grounded and that everything is in good condition, and then connect the positive cable to the battery.

10. Replace the battery-box cover.



11. Place the fuses in the fuse clips at the lighting switch.

Wiring System

See Figs. 12 and 13

The complete wiring diagram of the system is shown in detail, both externally and internally, in Figs. 12 and 13. It is important that the wires be examined carefully from time to time to see that they do not rest on the sharp edges of the metal so that the insulation becomes worn or injured. This examination cannot be made except from beneath the car, and if any cables are found swinging so that they come in contact with any metal parts, they should be bent or protected with tire tape so that injury is impossible. There are nine wires in all, and these should be firmly connected to their terminals or screws on the different units and the parts in contact should be cleaned.

If the battery circuit is open when the generator is operating, an excessive voltage will be built up that will injure the generator and burn out the lamps. If the battery is removed or disconnected and it is necessary to run the engine, one of the generator brushes should be raised to prevent contact with the commutator.

Chain Adjustment

As is the case with most chain drives, a certain amount of slack occurs during the first 500 miles of travel, and at the end of this time a chain adjustment should be made. After this the amount of stretch is so slight that adjustment is rarely necessary.

The points of adjustment are shown in Fig. 5. To make the adjustment:

1. Loosen adjustment screw No. 5 and the two clamping nuts No. 7 at the top of the system.

2. Loosen the two clamping nuts No. 6 at the bottom of the system and the clamping nut No. 8 at the right side.

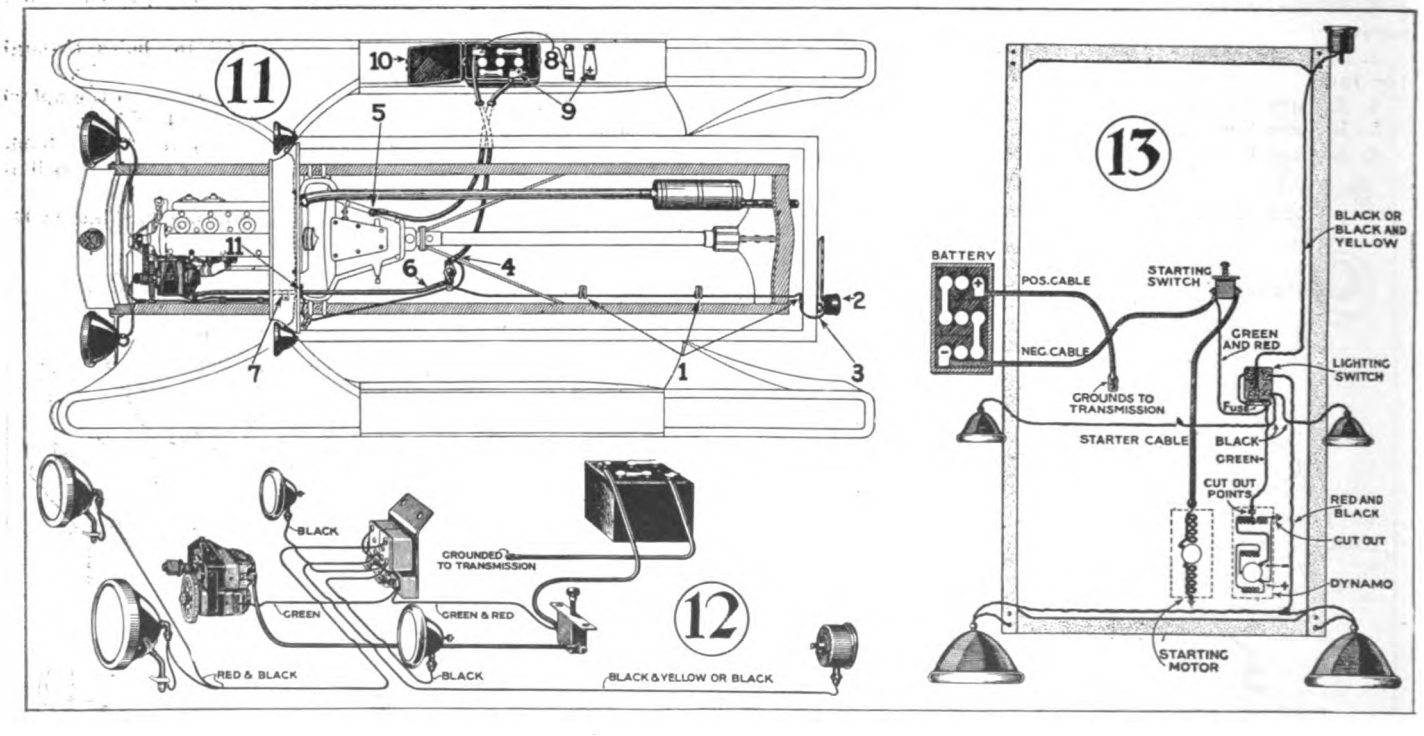
3. Slide the adjustable bracket until all perceptible slack is taken up.

4. Tighten the adjustment locknuts and then the five bracket clamping nuts.

5. Crank the engine by hand to see whether the chain works freely, and grease the chain so that it is not permitted to run dry.

After a long period of service, all chain adjustment will be taken up in the above manner. In this case the adjustment should be set back to the starting point and a pair of links removed from the chain. In the later chains a pair of removal links are provided, held in position by removable pins that are a trifle longer than the regular riveted pin. In making this adjustment it may be necessary to lower the supporting brackets slightly by removing some of the 1/32-in. washers under the bracket, or by filing the spacer slightly so that the chain will not be too tight after the units have been lowered.

War Ideas
See Page 5



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Claims of Steel Shortage Unjustified

Industry Could Get Along with 7/10 of 1% of Entire Alloy Output of the Steel Industry

DETROIT, Nov. 24—The automobile industry, if it had to, could manage with so little alloy steel that it would not have any trouble getting it. Normally, it would require 75 tons of alloy steel per 1000 cars produced. Cars of almost equal quality can be produced with 23 tons or less of alloy steel per 1000 cars.

If the automobile industry uses only 5 per cent of the alloy steels in peace time with large production, it will only use normally 2½ per cent with production 50 per cent off. If it can cut this amount down 70 per cent, which leading engineers say is very well possible, it will mean that the automobile industry will only require seven-tenths of 1 per cent of the alloy steel output of this country to make good cars. This amount can readily be spared to an industry so essential to the welfare of the country.

The three main parts of the car where alloys are practically indispensible are the clashing gears in the gearbox, the torsional members in the rear axle and the balls used in ball bearings. The other transmission gears could be made of high carbon steel and, if the heat treatments were carefully worked out and held to close limits, the gears would be just as good and last nearly as long as the chrome-nickel gears now employed. The gears which have to endure shock, however, should be made of chrome steel, although even these can be produced satisfactorily by metallurgists from carbon steel.

Every automobile company threatened by shortage of alloy steel has been busy on the question of the possibility of dispensing with alloy steel. The Cadillac company, if it had to, could reduce the alloy steels to 75 or 100 lb. a chassis. This is true with Buick and the other companies in the General Motors group, where the metallurgical matters are handled through a central staff.

Hudson has reduced the necessary amount of alloy steel in the car by more than 60 per cent, so that if a real shortage should come there need not be more than 100 lb. of alloy steel in the Hudson chassis.

Oldsmobile can use carbon steel in place of alloy steel if the supply of alloying substances is cut off. Valves would be cast iron, in place of tungsten steel and though requiring more frequent grinding, results which are practically as good would be obtained.

Oakland could dispense with tungsten steel for valves and would have to find a substitute for vanadium for the roller bearings, but this problem has been practically solved by the bearing manufacturers themselves.

The Ford company uses 300,000 tons of alloy steel a year in its present product, or about 30 lb. to the car. A large percentage of the steel used in the Ford car is vanadium steel, yet the amount of ferro-vanadium used in a car would not make a lump as large as a man's finger since by chemical analysis the percentage of vanadium is .15 or between 1/6 and 1/7 of 1 per cent.

Chrome nickel steel for the meshing or clashing gears, and nickel steel for the rear axle shafts are the two most essential alloy steel products in the passenger chassis. It would take but a small fraction of 1 per cent of all the alloy steel output of the country to supply the automobile industry with these, and therefore, taken as a whole, the automobile industry need not be very much worried about the alloy steel situation.

Many companies have on hand a good supply of alloy steel which can be stretched over a very prolonged period in case of necessity. Other concerns also have not even begun to worry about the shortage of alloy steel. The King company has enough for next year's production. Cadillac is well fixed and is not worrying about a shortage.

The valve question could be readily solved by the cast-iron head and carbon steel stem. On the other hand, the axle shafts are difficult. The torsional stresses on these are hard to meet with the carbon steels. There is no doubt, that in a case of real shortage, the axle members could be redesigned, possibly with tubular construction, so as to eliminate the necessity for alloy steel here.

Government Changes Attitude Toward Car Industry

Priority Board Now Says It Has No More Curtailing Orders in Mind—No Steel Shortage—Alloy Factories Glad to Get Motor Car Industry's Orders

WASHINGTON, Nov. 26—The attitude of the Government toward the motor car industry has clarified quite considerably during the last week. It has developed in Washington that the order restricting the shipment of alloy steels to automobile factories was never intended to have been sent out; sending it out was a mistake. It has further developed that there is no shortage of alloy steel so far as the automobile industry is concerned. Some of the companies specializing in alloy steel stated last week that their factories were far below capacity and that they were glad to be making shipments to the automobile industry.

From the automobile industry comes the very assuring news that it can get on very well without alloy steel. Several of the largest companies have already changed from alloy steel to high carbon steels. This has been so well accomplished that the amount of alloy steel necessary for the motor car industry under its new steel program is such that it is questionable if the War Industries Board or any other government organization would attempt the prohibition of shipments to car makers. Those car makers using alloy steels, and where the parts are too light to allow the use of high carbon steel, face a serious difficulty. This applies to very few manufacturers, however.

The Washington situation with regard to the motor car industry has still further cleared off in that there does not seem to be any danger of any more restrictive orders or priority orders regarding shipments. Judge Robert S. Lovett, who has charge of all priority matters, has issued official statement denying that he is contemplating any further orders shutting off railroad freight cars from the automobile industry. He declares that he has not in mind any transportation order treating any industry as a nonessential since priority No. 2 issued November 1 and relating to the use of open-top railroad cars. In other words, there is no cloud hanging over the industry on the matter of railroad cars.

The Automobile Industries Committee in Washington consisting of Messrs. Copland, Chalmers and Lee, has not made much progress to date, but is working on the problem of collecting statistics concerning raw materials necessary for the motor car industry. This committee has been collecting figures on the amount of tin, copper, and other metals consumed in the industry. The Motor and Accessory Manufacturers Association and the National Automobile Chamber of Commerce both are working with the automobile committee.

This Automobile Industries Committee also has in hand furnishing information to the Government regarding those motor car factories whose business has dropped off and which are now in a position to take on government work. The committee is acting as a go-between in that it is bringing the Government and these manufacturers together. A little progress has been made in this respect.

Perhaps the most threatening aspect is that of railroad transportation. This is as serious a problem as the country is

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confronted with. It may mean that motor-car dealers will have to drive a great many more cars from the factories than they have in the past. It may be that spares will have to be carried in these cars.

It may be that all motor trucks will be driven overland from the factories, and they may have to be loaded with shipments of spares and other materials. The dealer can assist in the present railroad shortage by seeing that all railroad cars loaded with motor cars are unloaded with the minimum loss of time. There should not be an hour wasted in this respect. The government is watching this matter very closely, and nothing will stand the industry in better stead than prompt attention to this unloading problem.

The shortage of coal is proving a serious situation, but it is difficult to see how it is going to affect motor-car production for some time. It is rather hoped that the government, by its new railroad legislation, will eliminate trouble in this field.

The Week in Washington

Propaganda from Unknown Sources with Frequent Stories of "Curtailment" Hurts Industry—Fullest Cooperation Not Secured among Those Whose Work Is to Care for Interests of the Motor Car Trade

WASHINGTON, D. C., Nov. 26—The situation in Washington regarding curtailment of passenger car manufacture is decidedly optimistic though there are yet many doubtful elements, chief of which are over-confidence on the part of individuals striving to save the industry, undue exaggeration by elements opposing the industry, a noticeable lack of co-operation between individuals who should co-operate, and a considerable degree of co-operation between parties who should be more cautious.

The optimistic attitude assumed by members of the Automobile Industries Committee and others interested in securing justice for the motor car industry is chiefly the result of the statement issued by Judge R. S. Lovett, administrator of the priorities transportation act, where Judge Lovett states that rumors of further curtailment of freight facilities to the automobile industry are untrue.

It is also due to the coal, gasoline and steel situation which remains in much the same state as the week before. The optimism should, however, be merged with a goodly measure of caution.

There are apparently a number of parties interested in the curtailment of the automobile industry as can be proved by the unceasing untrue publicity which emenates from unknown sources and which tends always to create hysteria and fear for the industry. So long as these parties continue their propoganda caution must be observed.

In addition, the statement by Judge Lovett, while a denial of the rumors of the past week, is not a strong one. Instead it is noticeably weak, since it makes no remark of the future, tells nothing of freight conditions and emphasizes again priority order No. 2 which has created such havoc in shipment of steel to car makers.

It would be most interesting and profitable if those committees and individuals who are in Washington striving to aid the automobile industry would devote a part of their energy to tracing the source of the rumors that appear frequently and which create the impression that the automobile industry is in danger. If, for example, the story which appeared late last week in a New York newspaper to the effect that freight conditions would force further curtailment of freight car facilities to the industry, could be run down to the source, it is likely the industry would learn quickly just who comprises the party opposing it and also would learn just how to combat these parties.

The lack of co-operation might rather be called the substitution of competition for co-operation between the Automobile Industries Committee and the Automotive Products section of the Council of National Defense. This latter was designated by the War Industries Board as its representative on all matters automotive and was especially appointed to act as the go-between for the automobile committee.

In place of this plan, however, the recent events display the committee disregarding the Automotive Products section in some matters, and despite the fact that the section expended much energy to secure Judge Lovett's statement, the committee also takes upon itself full credit for that.

This does not mean that the committee is not working to its utmost ability. It is. It is conscientiously devoting its best energies for the betterment of the industry though possibly not so wisely as might be. The committee seems to have a different impression of its chief duties than the public impression.

According to Mr. A. W. Copland, chairman, "It is formed primarily to make the automobile industry useful to the government in war work," while the general outside impression is that the committee, while aiding the government in war work, is primarily formed to aid the industry against unfair curtailment.

On the other hand, and against the obvious lack of co-operation referred to, there has been a spirit of co-operation and friendliness and a willingness to accept judgment displayed by parties representing the industry, both officially and unofficially, with members of the Council of National Defense who really should be regarded with a certain amount of reserve and caution until those parties who create the misleading publicity regarding the industry become known. For example, the recommendation of Council members not in any way connected with the industry was accepted by parties representing the automobile industry in the matter of the appointment of an important Council member last week. Until the enemies of the industry are known, such recommendations should be taken reservedly.

The situation as regards steel and coal remains much the same. No new statistics on steel conditions have yet been gathered and the orders pertaining to chrome steel and to steel shipment still stand. However there should be a certain optimism about these problems and for that matter about all problems here. According to steel makers there is really no just cause for hysteria since the steel production seems sufficient for all purposes, and the coal problems appear to be rapidly vanishing or at least are becoming less complex. Fuel Administrator Garfield's statement of last week to the effect that arbitrary action would be the very last move of his office makes clear that the situation at present is not extremely critical.

And so far as regards the automobile and freight car situation, even this may be regarded with lessened fear if we recall the fact that the industry has often faced this problem in varied forms before and escaped it. The steel production of the nation is about 40,000,000 tons a year. Of this the industry requires only about 1,250,000 tons. And if the freight car situation does become so critical that the industry must suffer curtailment of freight facilities, a condition that does not appear probable, it can always with trucks and other means, solve the problem, much as it did with the drive-aways of last winter.

In other words, the constant reports telling of total curtailment of the passenger car industry might always be taken with a grain of reserve. The automobile industry in the United States is not the automobile industry of England. It is not a small insignificant helpless industry. It is the third largest industry of the nation—and with its great facilities it can always, if treated with just consideration, work its way out of any difficulties that may arise through this war.

The War Industries Board should be told of this viewpoint if the occasion demands. It should be informed if the time comes when the nation really needs every freight car for war purposes, that freight car curtailment should not necessarily mean steel curtailment and that the industry will find another means for transporting its steel. It should receive the aid of the industry in a positive way rather than in a negative manner.

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At this time it does not appear as if there will be any direct and equal curtailment of the automobile industry, according to the Automobile Industries Committee which believes that the War Industries Board will, instead, allow all manufacturers who desire to take up their slack business with war contracts providing they have the facilities—and also providing there are munitions to be made, for now comes the astonishing statement that despite all the recent publicity to the effect that the automobile industry must convert its facilities to munitions work to save the nation, practically all contracts are already placed outside of the industry and only a few remain to be let—additional evidence of the fallacies of the publicity frequently appearing.

One of the fortunate events of the week was the refusal of a large parts maker, already in government service, to accept a position in the Council of National Defense as a member of the board which will deal especially with war industry problems, and which is soon to be formed as announced last week. This individual gives as his excuse his already extensive duties, but it is suspected that he wisely preferred to have no connection with a committee dealing with industry curtailment and which would certainly prove embarrassing if at a later time curtailment of the industry with which he is connected would be broached.

Pooling of the railroad facilities from Chicago eastward to the coast is regarded as a particularly wise movement and it is anticipated that the operating committee of vice-presidents of the various roads will arrive at an agreement for elimination of parallel and duplicate service, and for classification of high-class freight and low-class freight without much difficulty.

If however the committee does not arrive at a solution it is hinted here that the Government will appoint a transportation dictator with power to set aside hampering influences and run the railroads, combining pooling of revenue as well as equipment. Methods such as these combined with the rapidly increasing output of locomotives and freight cars will soon put an end to the transportation problems, and will prove more profitable to the nation than any hasty curtailment of industries.

The Automobile Industries Committee now employing four industrial engineers will soon have a complete staff allowing one or two engineers for co-operation with every department of the Government interested in munitions that can be supplied by the automobile industry.

Blueprints and specifications showing war needs are on display at the committee's offices and all manufacturers are invited to examine these and if they feel themselves capable of producing the munitions required will be taken to the proper department by the committee.

Assembly contracts for the class B war trucks have not yet been placed and probably will not be for another fifteen days. Contracts for sample parts for the three sample class A war trucks which will be assembled by Dec. 10 were placed last week.

Pathfinding Truck Route To The East

After Road Is Found Trucks Will Co-operate With Railroads In Handling Freight

WASHINGTON, Nov. 24—A pathfinder car left Detroit this week en route for Washington and an Eastern seaboard carrying several army officers and a bridge engineer, under the supervision of the Highways Transport Committee, to determine the best military highway route from Detroit eastward.

This car, loaned for the purpose by the Lincoln Highway Association and driven by H. C. Ostermann, field secretary for the association, will travel through Ohio, Pennsyvania and other Eastern states and will be met at the border of each by the highway commissioners of the different states who will travel with the party to the following border of the state, making observations of bridge and road conditions and conferring with the army officers.

Two weeks hence, if the conditions are found satisfactory a complete truck company such as will operate in France, and comprising 27 cargo trucks, 2 gasoline tank trucks, 1 baggage and rations truck, 1 light repair truck and 1 officer's car will make the journey with 7 soldiers aboard, to prepare the way for the drive-away next Spring of the thousands of heavy duty war trucks now planned for early assembly.

The Highway Transport Committee in addition to supervising this work has commenced first-hand investigation through several engineers of road and traffic conditions in various sections of the country where terminal freight congestion is severe. Plans are being formulated for the use of motor trucks at such points, and the railroads, extending full co-operation, plan to use the motor truck transportation to relieve their congestion wherever it occurs at points where short freight hauls can be taken up by motor truck transportation. Following complete investigations definite recommendations will be made both by the railroads committees and the Highway Transportation Committee.

Designing Airplane Gasoline

WASHINGTON, Nov. 27—A standard grade of gasoline for use in the aviation engines of all the allies was decided upon here last week at a meeting at which engineering representatives of England, France, Italy and the United States were present. The plan is to design a new brand of gasoline for airplane use which will be a world standard. The particular grade to be adopted does not exist, but gasoline engineers are setting to work on the job and in a short time there will be evolved this new standard. This action was arrived at due to the severer conditions to be met by airplane engines as compared with motor cars and motor trucks.

The new fuel is to be developed by the Bureau of Standards, the Bureau of Mines, the Signal Corps and the Society of Automotive Engineers.

The standard gasoline, according to specifications laid down, will be a better fuel than that used in motor cars to-day. It will have a lower end point, perhaps 100 degrees lower than many motor-car fuels, and will also have a lower starting point. The percentage of volatility throughout the fuel will be greater than in present gasoline grades. The new gasoline will be such as to get the maximum quantity out of a gallon of crude oil, and yet give the highest possible end point on the distillation curve.

This is the first time on record when engineers have set out to design a fuel to meet given conditions. The problems of lubrication under all conditions will be considered in conjunction with the work.

Telling the "Essential" Story

MINNEAPOLIS, Nov. 25—The Minneapolis Tribune of to-day is carrying a story, written by W. C. Sills of the Chevrolet Motor Co., and printed some time ago as an editorial in the New York Journal, to the effect that the motor car is an essential and not a luxury. The elimination of the word "pleasure" as applied to cars is recommended. The Tribune's story is to be given wide circulation among bankers, business men and car owners throughout the big distributing area covered by the Twin Cities.

The Minneapolis Automobile Trade Association has suggested to General Manager Alfred Reeves of the N. A. C. C. that a systematic propaganda be instituted in the industry from the top down through the entire merchandising chain to eliminate the term "pleasure car" in literature, advertising and conversation.

Maxwell Truck Prices Revised

DETROIT, Nov. 26—Prices of the Maxwell 1-ton truck have been revised as follows:

Model	Old Price	New Price
Chassis	$865	$985
With Cab and Windshield	900	1,025
Complete with Stake Body	955	1,080
Complete with Combination Box Stake Body	950	1,075
Chassis with Combination Box Body	915	1,035
Chassis with Express Canopy Top and Windshield	975	1,095

Material Situation Easier in Detroit

DETROIT, Nov. 26—The material situation in Detroit is considerably easier at present and there is plenty of alloy steel in sight. The business of manufacturers producing assembled cars is holding up very well. Dodge Brothers are at present behind orders; Buick production is building up considerably; Ford last week reached its biggest production.

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Large Used Cars Not in Very Great Demand

Situation Intensified in Detroit — Drive-Aways in Style — 150 Dodge Drives to Iowa

DETROIT, Nov. 23—A survey of the dealers in used cars made here indicates that the heavy used car is in very little demand. This has been a constantly increasing condition, but has become even more marked recently. Used cars of the heavy type in the 1915 series are on the market at prices as low as $150, and will not move at that price, and in some cases the best offer received for such cars amounts only to $85 for junk. The buying public in the used car class want light cars; cars that do not require much upkeep expense, and this condition is tending to place a premium on cars in that class.

The shipments of light used cars to southern dealers is becoming more general. One used car dealer, the Motor Mart, whose greatest business in used cars is in southern quarters states that the reason for the southern demand for light used cars is because of ease of shipment. New cars have to be shipped in good condition, and to do this requires the use of a type of freight car that is not readily available now. But the used cars can be shipped in anything. Drive-aways are exceedingly difficult to the southern cities.

A marked increase in the number of drive-aways in all the factories is noted. Dodge Brothers had a drive-away this week to Iowa and Nebraska, and about 150 cars are going overland from Flint every day. The dealers are furnishing their own drivers, as the factories are generally laying off their drive-away crews. But the outlet by drive-aways, and also through lake shipments is bound to close with the coming of winter.

In the new car field business is quiet, though no more so than it has been for the past few weeks.

Make Your Windows Work

(*Continued from page* 14)

The chances are you can do a job that will be just as serviceable as professional work. Probably you have a clerk in your employ who is something of a card writer and is looking for a chance to show what he can do.

Remember, it isn't fancy lettering that sells the oil—it's what you say that counts.

In the built-up units the small cans are grouped on a board stretched across the tops of the larger cans which form the basis of the unit; or else they are spaced out on wooden boxes in which the cans were shipped, and these boxes draped with a piece of cloth. The drums, which are shown elevated in several of the displays, are placed one on top of another or else supported by two shipping cases covered with black cloth.

The large Chart of Recommendations and the booklets used in these windows are furnished by the oil manufacturer whose goods are displayed. Other manufacturers have Dealer Helps which you can obtain from them.

Look these displays over carefully. You probably have some equally good ideas of your own that you can work out effectively.

Get busy on your windows to-day.

Lay out a schedule of displays for each week.

Use these ideas.

The experiences of hundreds of dealers who are cashing in on their windows to the fullest extent prove that the window that tells a story is the one that gets the business.

Higher Rates Coming for Theft Insurance

Frequency of Car Stealing of Big Cities Causes Policy of Only Partial Coverage

NEW YORK, Nov. 26—Theft insurance is to be materially altered Feb. 1, 1918. At its annual conference, the National Automobile Underwriters Conference tentatively adopted a form of reduced-value theft policy which will be sold at reduced rates. Present theft policies are to be continued at present rates except in certain cities of over 200,000 population where the policy providing for reduced coverage and at a reduced rate will be sold.

Ask Your Newspapers to Print This Story

(*Continued from page* 8)

"In England," says Motor World this week (insert the name of any dealer in place of Motor World if desired, or remove all quotes and let the statement stand alone), "the motor car industry has been shut up entirely, and the fact that it was shut up is considered by many as a reason why the same industry should be shut up in America.

"But—the shutting up in each case should be founded upon the same reasons, and unless the same necessities exist in America the industry should not be suppressed here as it was in England.

"In England the industry was suppressed because the entire factory capacities were required for munitions work. America's motor car industry is so much larger than England's that a part of it is able, say men who know, to handle all the munitions work that is necessary. Factory capacity therefore is not a great factor.

"In England there were coal and steel shortages, which made it necessary that everything except munitions give way. But in America the big men in coal and steel say there is no shortage, and just a few days ago the government issued a statement that there is plenty of gasoline for both war and peace activities if car owners economize and cut out waste.

"Labor is, of course, a big problem. In England it was met by the employment of women—but at men's wages. This may have to be done in America. Transportation is a vital factor here, but the industry hopes to solve much of this problem by driving cars overland and by establishing inter-city truck services.

"Furthermore, the motor car is not the essential in England that it is in America. There distances are short. Between London and Edinburgh it is 350 miles in a direct line, between London and Manchester only 170. The air line between London and Paris is only about 210 miles, about as far as from New York to Boston.

"It is 3182 miles from New York to San Francisco. It is a night's ride between almost any two principal American cities, and sometimes more. Our wide country area makes America a land of distances. Take North Dakota with its 55,000 cars and 700,000 people, mostly farmers. Nearly all the cars are owned by farmers, who have to have them. Why?

"Because the railroads simply don't exist. The biggest city in the state has less than 20,000 people. Railroads run with infrequent stops through town after town of handfuls of houses and no officially listed population. Cars run across the prairies.

"Between Grand Forks and Minot it is 200 miles, and only one real stop. Between Minot and Bismarck—the state capital—with populations of 5000 or 6000 each—it is 180 miles by rail, and the one train a day leaves at 9.15 and arrives at 5.50 p. m., 8 hours and 35 minutes, making all stops. The man in Minot can reach the state capital in a motor car ahead of the train, for his route is much shorter and he can go faster. And there are thousands of miles of country, populated by thousands of farmers, whose only means of travel is the car. Imagine covering an 110,000 acre ranch without cars.

"Farmers buy 80 per cent of all cars bought in America and use them for business purposes. The remaining 20 per cent is used for a goodly per cent of business work.

"Why is the motor car then a non-essential? And why does the government rate the piano as a necessity? A hitherto unthinking public must change its views. It must not let itself believe that its third greatest industry is in the perfumed soap and cosmetics class.

"The farmers who own 80 per cent of our cars and the thousands of business men who make their cars work every day might be able to get along without perfumed soap, but could they do without their cars and maintain that collective national efficiency which is needed for the winning of the war?"

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All Racing Off for Duration of the War

A.A.A. To Issue No Sanctions and Suspends All Rules—Demand for Men the Reason

NEW YORK, Nov. 24—There will not be any more sanctioned racing in this country during the period of the war. The Contest Board of the American Automobile Association voted this action at a special meeting held to-day at which representatives of nearly all of the speedways were present. The discontinuing of racing during the war is due primarily to the great demand for car drivers and mechanics in France.

Immediately after the Contest Board had taken such action and handed its report to the Executive Committee of the American Automobile Association, this latter organization accepted the report.

The Contest Board has suspended all contest rules for that period. The offices of the board will be continued at 501 Fifth Avenue and Richard Kennerdell, who has been chairman for several years, will continue in that position along with the present membership of the board.

The official action of the board was taken in the following resolution.

"Whereas the country is in a state of war in which our entire available man-power is needed for national activities; and

"Whereas the national need for skilled workmen in numbers greater than it is possible to furnish them is urgent; and

"Whereas the national need for mechanics, automobile drivers and others skilled in the care and maintenance of motor apparatus, that is playing such a leading role in the present war, is imperative; be it, therefore,

"Resolved, That it is the sense of the Contest Board of the American Automobile Association that it will not sanction motor car contests during the period of war exigency, and that during the aforesaid period the rules of the Contest Board shall be suspended."

This action of the national motor sport governing board is in accord with the Royal Automobile Club of Great Britain, the Automobile Club of France, the Automobile Club of Italy and other European organizations. These foreign bodies are being notified of the A. A. A. action so that after the war international regulations governing motor car racing will be resumed.

Winter Business Meeting for St. Louis

ST. LOUIS, Nov. 26—The Motor Accessory Trade Association of St. Louis is to have a "Winter Business" meeting in January. It is hoped to have every dealer and garageman within a radius of 25 miles of the city at the meeting.

Randall Heads Brooklyn Dealers

BROOKLYN, N. Y., Nov. 26—Arthur E. Randall was elected president of the Brooklyn Motor Vehicle Dealers Association at the annual meeting last week, other officers elected being: First vice-president, Herbert L. Carpenter; second vice-president, W. H. Kouwenhoven; treasurer, I. C. Kirkham; secretary, A. D. Corwin.

To Build Planes in Rock Island

ROCK ISLAND, ILL., Nov. 24—An aircraft plant for the manufacture of planes for the United States Army may shortly be opened in Rock Island. Lieut. Glenn Cummings, formerly of Sheffield, Ill., and recently with the Royal Flying Corps of the British army in France, made this statement this week as a representative of the Hartley Aircraft Co. of Chicago, an organization with a capital stock of $1,000,000 founded by De Bert Hartley. Lieut. Cummings has opened headquarters at 1607 Second Avenue.

Weidely Motors to Expand

INDIANAPOLIS, Nov. 23—The Weidely Motors Mfg. Co. has increased its common stock from $600,000 to $1,100,000 and its preferred of $100,000 was not increased. The increased capitalization will be used to increase the size of the company's plant and to purchase about $70,000 worth of new equipment. The company will erect in the near future a plant which will triple the manufacturing space of the present plant.

Ford Reaches 3000 a Day

DETROIT, Nov. 23—On the 20th of this month the Ford Motor Co. struck the highest point in its production, manufacturing on that day 3000 cars; it is expected that 800,000 cars will be turned out this month. Any question as to the effect of munitions manufacture upon the normal production is answered by comparing the production figures of the first 3 months of the present fiscal year with those of last year.

Year	August	September	October
1917	52,719	68,989	75,372
1916	22,667	45,850	56,628

Continental to Make Class B Truck Engines

NEW YORK, Nov. 26—The Continental Motors Corp., Detroit, has received an order for engines for the Class B U. S. A. standardized army trucks. It is understood that the order calls for the production of 360 engines in January with an increasing monthly production until a total of 6000 engines has been delivered.

Wire Wheel Licenses Dayton

BUFFALO, Nov. 24—The Wire Wheel Corp. of America, which succeeded to the business of the Houk Mfg. Co., has granted a license under its basic patents, to the Dayton Wire Wheel Co., Dayton, Ohio, to manufacture wire wheels. The Standard Roller Bearing Co. of Philadelphia, Pa., and the Hayes Wheel Co. of Jackson, Mich., are also operating under such licenses.

Haynes 6 and 12 Are Changed Only Little

Springs Are Longer and More Flexible and Alterations Are Mostly in Details

KOKOMO, Nov. 24—The Haynes Light Six and Light Twelve are continued for 1918 with but few mechanical changes. The chief refinements are improved bodies and lines, stronger frames, and longer and more flexible springs. The bonnet is high-arched, the windshield tilted and the front fenders shaped to conform with the front wheels. The touring bodies are of the double cowl type. A new four-passenger four-door roadster is added to the line. Convertible seven-passenger sedans, four-passenger coupes, and town cars are built in both the Light Six and the Light Twelve. The five- and seven-passenger cars have wheelbases of 121 and 127 in., either of which can be obtained with the six- or twelve-cylinder engine.

A few minor changes have been made in the twelve-cylinder engine which has a bore of 2¾ in. and a stroke of 5 in. The rocker shaft of the valve mechanism has been increased in diameter and is made of hollow stock, the interior being used as an oil reservoir to lubricate the shaft bearings. The push rods are of larger diameter and made of tubing which gives lighter moving parts. The design of the gear type oil pump has been altered so that a higher oil pressure can be carried. The thermostat for control of cooling water temperature is located at the inlet manifold where it is in contact with the water as it leaves the cylinder block, thus insuring a more even operating temperature. On all models the gear shift and hand brake levers have been bent back so that they are within easy reach of the driver. The starting motor pedal is located in a more convenient position on the toe board.

Many Body Styles

The six-cylinder open line includes a five- and seven-passenger touring car for $1,725 and $1,825, respectively, and a four-passenger roadster for $1,825. All open bodies have solid front seats. The twelve-cylinder open cars include a seven-passenger touring and a four-passenger roadster for $2,785. The coupes sell for $2,535 in the six and $3,385 in the twelve, and the sedans for $2,585 in the six and $3,385 in the twelve. The town cars are furnished in either the six or twelve for $3,250 and $3,985. All models use the buttonless French pleated upholstery, the open cars in dull finish pebble grain leather and the closed cars in an attractive gray wool cloth.

Coast Branch for Philadelphia

SAN FRANCISCO, Nov. 24—The Philadelphia Storage Battery Co. has opened a wholesale branch at 37 Spear Street here. A. P. Clark will be manager.

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Solid and Pneumatic Fight in Truck Field

Struggle for Supremacy On, Says Goodyear Man at Philadelphia S. A. E. Meeting

PHILADELPHIA, Nov. 24 — A struggle for supremacy between solid and pneumatic tires is about to open in the heavy trucking field. At the monthly meeting of the Pennsylvania section of the S. A. E. last night Wm. S. Walle of the Goodyear Tire & Rubber Co. told how all of the large tire companies are at present experimenting with pneumatic tires for heavy trucks. Pneumatics of 6, 7 and 8 in. width are already in use, and 10 and 12 in. sizes are being developed and will be placed on the market soon.

It is not pretended that these pneumatic tires will last as long, nor that they will keep down the tire cost to the same figure as solid tires, but they will increase the economy of operation in every other respect. These tires will permit of greatly increasing the speed of trucks and undoubtedly double the amount of work which can be done in a day. The fuel consumption per ton-mile will be decreased and so will the upkeep of the trucks.

At the present time the larger trucks are provided with governors to limit the speed to anywhere from 10 to 15 m.p.h. If pneumatic tires are adopted the governed speed should not be less than 25 m.p.h. and perhaps governors will not be required at all. With the experimental trucks of the Goodyear company speeds as high as 40 m.p.h. were obtained and, in fact, the only limitation on the speed of such a truck is the power of the engine. The present radius of operation of motor trucks is something like 30 or 40 miles and this would be doubled with pneumatic tires.

As regards the economy in fuel that would result from the use of pneumatics on trucks it is difficult to give any definite figures. The United States Tire Co. gave a figure of 40 per cent for the reduction in fuel consumption. The Goodyear company has been using pneumatically tired trucks in its work for three or four years and it is believed that the upkeep of the trucks has been decreased by 50 per cent by the use of pneumatics.

For passenger cars, to secure the best possible riding qualities consistent with moderate upkeep cost and economy of power, cord tires should be used of adequate size in view of the load to be carried and inflated to pressures lower than have been recommended heretofore by tire makers for tires of the size in question. This was the gist of the meeting covering Size, Inflation Pressure and Construction of Tires as Affecting Easy Riding.

The better riding qualities of the cord tire are due chiefly to the fact that it will carry a given load with less air pressure than a fabric tire. Riding qualities can be improved by the use of exceedingly large tires inflated to very low pressures, but this is not good practice because the operating cost per car-mile increases rapidly and the power consumption also increases.

Here's a Publicity Stunt

PITTSBURGH, Nov. 24—An unusual publicity stunt was recently inaugurated by H. W. Curtis of the Samson Motor Co., Pittsburgh distributer for Maxwell and Roamer. Curtis arranged with five well-known business men to act as Maxwell "money men." Each was given a certificate calling for $20 in gold, which was to be given up to the first person who accosted them in this manner: "Have you seen the new Maxwell at the Samson Motor Car Co.," provided the person accosting the business man had in his or her possession a 1918 Maxwell catalogue. Curtis then inserted advertisements in the newspapers inviting the public to go after the "money men," and gave each day the approximate location of the "money men."

More Capital for Eagle

APPLETON, WIS., Nov. 24 — The Eagle Mfg. Co., Appleton, Wis., which engaged in the manufacture of tractors a year or more ago, and previously was a large producer of gasoline engines, farm machinery, etc., has increased its capital stock from $200,000 to $500,000 in order to develop the tractor department.

Guaranty Securities Moves

NEW YORK, Nov. 24—The Guaranty Securities Corp. has moved its offices to 244 Madison Avenue. The corporation was formerly in the Equitable Building. It will occupy the first and second floors and basement of the new address.

South Expects Tourists

SAVANNAH, Nov. 24—An unprecedented tourist travel is looked for in the South this year, and it is predicted a majority of the tourists expected will come in motor cars. The Dixie Highway and the improved roads in practically every section of Georgia will offer a big inducement to bring the tourists this way and dealers may have—and are expecting—a big accessory trade.

Wagner Gets U. S. A. Truck Axle Order

INDIANAPOLIS, Nov. 24—The Wagner Axle Co., Anderson, Ind., which recently was organized and has acquired the plant of the DeTamble Motors Co., has been awarded a contract by the Government to manufacture axles for the U. S. A. trucks. A force of 250 men now at work will be increased to 500 men by the first of the year, when the company expects to be turning out 1000 axles a month.

Newark Dealers Run War Educational Ads

Use Pages in Sunday Papers to Tell Public Motor Car Is an Essential Product

NEWARK, N. J., Nov. 24—In an effort to show the people of this city the essential character of the motor car the dealers are running co-operative advertising in the Sunday newspapers. This is signed by all the dealers. It carries a big illustration and gets the story across in few words. Each ad is a page. With the ad appears a story of the same tone in the news columns.

Franklin Sales Gain 348 Per Cent in Southwest

DALLAS, Nov. 20—Franklin salesmen from different points in Texas and five states in the Southwest recently held a conference in Dallas to discuss conditions. It was reported that the Dallas and Southwestern territory showed a gain in business for the year amounting to an increase of 348 per cent, the greatest increase of any district in the United States. Several dealers made optimistic addresses regarding the automobile outlook for Texas.

Commissions for War Workers

WASHINGTON, D. C., Nov. 23—The following officers, inspectors and other workers connected with the Military Truck Production Board of which Christian Girl is chairman have received commissions in the National Army and will now work for the Board under military orders:

Captain, Carl H. Bowen; First Lieutenants, Donald G. Small, Frank P. Gravelle, George H. Adams, Max Leroy Jeffrey, Edwin A. Bayer; Second Lieutenants, Edward R. Finkenstaedt, H. H. Smith, Alfred H. Johnson, Stanley Wardwell, J. G. Stephenson, W. O. Campe and J. E. Casse.

Lewis Has New Six

NEW YORK, Nov. 24—The Lewis Spring & Axle Co. Chelsea, Mich., will put a new six-cylinder car on the market the first of the year, dropping model 186. The new Six will be known as model 206 and will have a Continental motor, 3¼ x 4½, 116 in. wheelbase, 32 x 4 tires, and will weigh but 2500 lb. equipped for the road. This car will be shown for the first time at the New York show.

Trenam Tractor Getting Ready

MILWAUKEE, Nov. 24—The Trenam Tractor Co., Milwaukee, organized some time ago by J. J. Trenam and F. M. Schuler of Milwaukee and Ed. Anderson, Fond du Lac, Wis., intends to establish a factory for the production of a 12-24 hp. tractor of the all-purpose type. Negotiations are being carried on in a half dozen cities of Wisconsin for a permanent location.

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Bay State Would Make Car Buyer Get a Bond

Would Cover Damages to the Injured—But Withholding of Bond Would Prevent Sales

BOSTON, Nov. 24—Must a prospect get a driving bond before he can buy a car in Massachusetts next year?

If he does, will the car makers and dealers have to go into the bonding business?

Will not such a law hurt sales?

Also, who is going to say who can have a bond and who can't?

All these questions are worrying the dealers and some owners.

The legislature this year directed the Highway Commission to determine if it would be feasible to bond motor owners so that anyone who is injured may be able to recover for negligence.

At the hearing the bonding and insurance representatives went over the matter with the commission. It was agreed that a man may now mortgage his car to any person and thereby escape liability of having to pay damages. Also if a judgment is obtained he can take the poor debtor's oath if he does not want to pay, and though insured the injured person can get nothing.

The bonding people said that they would be able to arrange some form of a bond that would cover accidents so that injured people could recover, and that it might cost at least $50 if not more. To a question whether or not the bonding companies would make the bonds blanket affairs for everyone the representatives said they *certainly would not do it.*

That meant, in other words, that the bonding companies would refuse to give everyone a bond, and it would make them the dictators as to who could drive motor cars in Massachusetts.

If the legislature passes a law compelling motorists to be bonded it may mean that the motor industry will have to go into the bonding business, for unless a man is sure of getting a bond he will not buy a car. The law would slow up the sales of both new and used cars in Massachusetts, for the companies generally agree that if one turns down a case others will do so.

Japs Visit Detroit

DETROIT, Nov. 22—Members of the Japanese Commission are in Detroit on an official mission to inspect the automobile industry and to investigate automobiles and trucks from a military point of view. Their reports to the Japanese war office will be an influential factor in the automobile subvention bill. This commission is likewise making an investigation of road conditions in this country, and it is stated that Japan intends to devote a great deal of time and money to the building of good roads in the next few years. Among the members of the commission visiting Detroit are: K. Murata, engineer of the Japanese Army; Captain K. Midzutani and Captain T. Iwaki, both of the Japanese Military Automobile Committee; Kanaye Fujita, of Mutsui & Co., Ltd., Tokyo; T. Shibato, of the Japan Motor Car Co., Tokyo; G. Mizoguchi, Sale & Frazar, Ltd., Tokyo.

Two-Ton Truck Maker for Graham

NEW YORK, Nov. 24—Graham Bros., Evansville, Ind., will manufacture an attachment selling at $585 that will make a 2-ton truck out of any passenger car chassis. The new product is built on the same lines as the company's Ford attachment. A Torbensen axle is used.

No Show for Seattle

SEATTLE, Nov. 24—No show will be held in Seattle this year, according to action taken by the dealers at their regular meeting. The action follows the policy adhered to last year, when the organization decided that on account of conditions peculiar to Seattle a display was not desired.

New Rainier Truck Model

FLUSHING, N. Y., Nov. 24—The Rainier Motor Corp. has a new model on which quantity shipments will begin the latter part of November. It will be known as model R-4, carrying capacity 2500 lb.; the chassis lists at $1,340; wheelbase is 125 in.; bodies are 8 ft. 6 in. behind the seat. Several standard bodies are carried in stock, ranging in price from $150 to $250. The rear axle is of the worm drive type with a gear ratio of 8¼ to 1. Clutch and transmission are Brown-Lipe make and the motor is standard Rainier 3¼ by 4½.

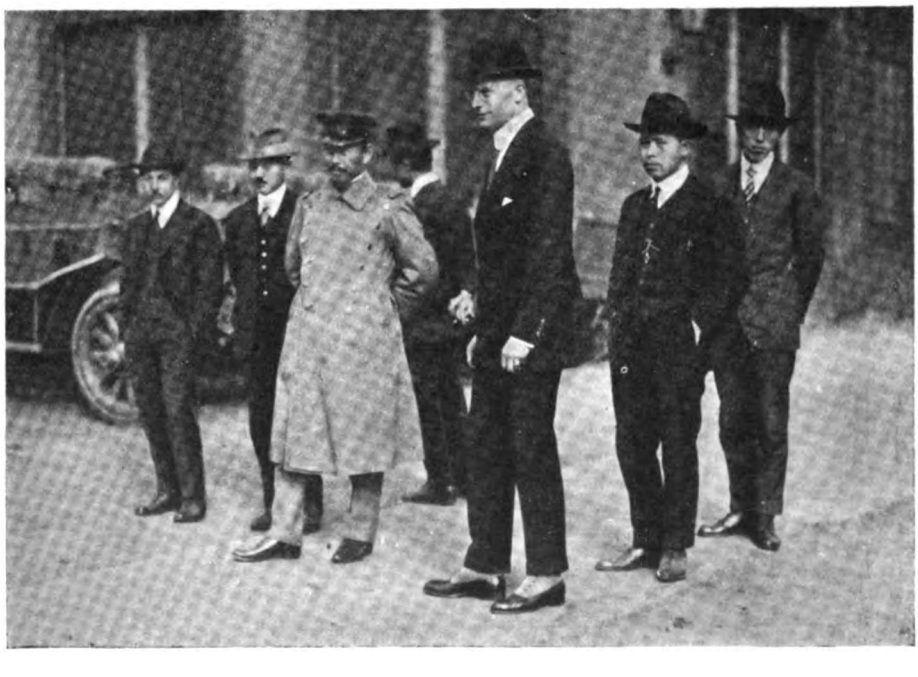
Dealers Should Have Voice at Washington

Johnson, of Boston, Plans to Take Matter Up with Government for Trade's Protection

BOSTON, Nov. 24—John H. Johnson, one of the directors of the National Automobile Dealers Association, believes that this organization should have representation on the War Industries Board at Washington. He intends to take the matter up with Senators Weeks and Lodge, who are now in Boston during the recess of the Senate.

Johnson points to the fact that the action of the Priority Board in ordering that alloy steel be cut off from passenger car makers without first having had a conference with makers and dealers would have raised havoc with the industry had it been allowed to go through. The fact that the makers are now represented, also the accessory manufacturers, he feels is all the more reason that the dealers should have a man on the job there.

If none of the dealers are willing to sacrifice their time and energy or cannot afford to lose the money such a task would entail Mr. Johnson would agree to go to the capital and work on the job himself if necessary. It was through his efforts that a committee of Boston dealers went to Washington a couple of years ago when there was a big fight on to tax cars, and through the efforts of the Bostonians as much as anything else a halt was called on the plan. He wanted to do the same thing this year, but his suggestion was not adopted, and ever since some of the Boston dealers feel that they were rather lax in staying away. Now they are beginning to see that the motor industry did not get all it was entitled to considering its importance.



THE MEN IN THE PICTURE—Members of the Japanese Commission, left to right, Kanaye Fujita, Capt. T. Iwaki, Capt. K. Midzutani (in uniform), K. Murata, Fred Cardway, G. Mizoguchi and T. Shibato

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

A. C. Barber, Moline, Ill., who recently resigned as general trade manager of the Moline Plow & Tractor Co., has entered the sales department of the Nash Motors Co., Kenosha.

P. J. Garnett, formerly of Cleveland, has recently been appointed district manager in Tacoma for the Ford Motor Co.

D. F. Bachelier, Spokane, Wash., has become manager of the Spokane branch of the Studebaker Corp.

Harry W. Anderson is sales manager of the Templar Motors Corp., Cleveland. He was formerly sales manager of the Stutz Motor Car Co., Indianapolis.

O. R. McDonald, for three years salesmanager for the Herring Motor Co., Des Moines, has resigned and will go to Indianapolis, where he will fill a similar position with the Gibson Co., Indianapolis. L. L. Wissler will take McDonald's place with the Herring Company.

Major C. C. Homan, formerly vice president in charge of purchasing of the Hal Motor Car Company, Cleveland, is now under orders from the War Department, and is expected to go across very shortly.

B. E. Blackely has resigned as general sales manager of the Chase Motor Truck Co., Syracuse, to direct the sales and advertising for the Larrabee-Deyo Motor Truck Co., Binghamton, N. Y.

D. W. Day, formerly sales engineer of the Hyatt Roller Bearing Cor. is first lieutenant in the quartermaster's corps and is stationed at Washington.

W. H. Redford is chief engineer of the Saxon Motor Car Co., succeeding C. H. Knowles.

Fred F. Bennett has succeeded John R. Welch as manager of the Crown Fender Co., Ypsilanti.

Martin Carroll, of the Van Cortlandt Corp., New York distributer for Peerless cars and trucks, has been commissioned a first lieutenant in the Ordnance Department.

Allen R. MacDonell, who has been a member of the Stearns New York branch since 1915, has joined the Peerless sales force.

Frank L. Bowron of the New Way Motor Co., Lansing, and **Ross F. Bowron** of the Olds Motor Works have entered the aviation service.

E. G. Shaw, general manager and vice-president of the B. F. Goodrich Co., is director of welfare and recreation for all Ohio troops, having been appointed by Governor Cox.

E. F. Lepine is assistant director of purchases for the Continental Motors Corp. He was formerly in the purchasing department of the Chalmers Motor Co.

F. J. Durling has resigned from the Loveland Co., Detroit, and is now manager for the King-Cleveland Co., King distributers. He succeeds H. A. Mitchell, who goes into government service.

J. F. Hangstefer, assistant service manager for the King Motor Car Co., has reported at Camp Custer, Michigan, under draft service orders.

Ralph Hoagland, lately with the King Auto Sales Co., Detroit, has entered the air service of the Signal Corps in a civilian capacity.

John J. McDonough, Jr., has been appointed branch manager for the Kaehler Motor Co.'s Norfolk (Va.) house, handling the King and Saxon.

W. A. Baxter, recently with the Maxfer Co., Chicago, will take charge of New York State, eastern Pennsylvania and New England for the Dart Motor Truck Co., Waterloo, Iowa.

E. W. Brooks, formerly with the Available Motor Truck Co., will be in charge of Illinois, Indiana, Ohio and western Pennsylvania for the Dart Motor Truck Co., Waterloo, Iowa.

S. B. Knudson will look after dealers in the States of Iowa, Missouri, Kansas and Nebraska for the Dart Motor Truck Co., Waterloo, Iowa.

E. D. Yount has been made manager of the South Bend, Ind., depot of the B. F. Goodrich Rubber Co. **W. W. Vandeveer,** former manager, has been transferred to the Goodrich Sales School.

J. W. Moore has been made manager of the Fort Worth, Tex., depot of the B. F. Goodrich Rubber Co.

F. S. McNaul has been appointed manager of the Hutchinson, Kan., depot of the B. F. Goodrich Rubber Co.

W. J. Balaun has been appointed manager of the Waco, Tex., depot of the B. F. Goodrich Rubber Co.

F. T. Reuter has been made manager of the Oklahoma City depot of the B. F. Goodrich Rubber Co.

W. F. Burbank succeeds A. E. Lees of the San Diego depot of the B. F. Goodrich Rubber Co.

S. S. Clark has been put in charge of the Salina (Kan.) depot of the B. F. Goodrich Rubber Co.

T. B. Graham succeeds C. J. Pomeroy as operating manager of the Seattle branch of the B. F. Goodrich Rubber Co. Pomeroy has entered the government service.

Sam Davidson was elected president and treasurer of the Chevrolet Motor Company of Texas at a recent meeting of the stockholders of the company. Other officers elected were **N. A. Lassiter,** secretary and **R. A. Dalrymple,** comptroller.

W. K. Swigert, superintendent of production at the Chalmers plant in Detroit, has resigned to take charge of the Nordyke & Marmon Liberty engine plant, Indianapolis.

H. M. Jerome, assistant engineer of the Chalmers company, has also resigned.

V. H. Smith of Cincinnati, formerly in charge of the service department of the Willys-Overland Co. in South Africa, has been appointed a first lieutenant in the ordnance department.

Derrill Pratt, star second baseman of the St. Louis Browns, has been added to the sales staff of the Overland Automobile Co. of St. Louis.

Wallace C. Capen, formerly manager of the St. Louis branch of the White Co., will resume that position after a year in Chicago. **G. E. Armstrong,** who was St. Louis manager during Capen's absence, has been promoted to a place on the White factory staff.

H. D. Smith, formerly manager of the Smith Motor Sales Co., Buffalo, Chandler distributer, has associated himself with J. A. Cramer in the Dodge Bros.' sales organization.

J. Ward Williams, formerly head of the sales organization of the Cole and Maxwell agencies in Buffalo, is now president of J. Ward Williams, Inc., Stanley steam distributer.

W. Byron Christie, Milwaukee, who has been associated with the sales departments of leading dealers and distributers in Milwaukee for six years, has been appointed sales manager of the Achen Motor Car Co., Milwaukee, Chandler distributer.

Capt. C. Harry Reeves, manager of the Baltimore branch of the Foss Hughes Co., Pierce-Arrow distributer, and who served as captain of one of the companies of the Fifth Regiment, M. N. G., on the border, has resigned and joined the aviation corps. Clarence R. Fisher succeeds Mr. Reeves as manager.

J. J. Hiltner, who went into the journalistic field after selling Oaklands and Saxons joins the sales force of the Reinhard Motor Co., Baltimore, Oakland distributer.

O. L. Wright has joined the sales force of the Habersham-Miller Co., Baltimore, state distributer for Republic trucks.

William M. Jett, who for several years was on the sales force of the Motor Car Co., Baltimore, Overland and Willys-Knight distributers, has become sales manager for the Central Automobile Co., Empire distributers in Maryland.

N. H. Hawke, recently special representative for the Chalmers Motor Car Co., has been made wholesale manager for the De Luxe Automobile Co., St. Louis, Oldsmobile distributers.

Orville Shipley, former race driver and for two years a member of the testing staff of the Empire factory, has joined the staff of the Knight Motor Co., St. Louis, Empire distributer, as an ignition expert.

George H. Kleinert, formerly in the production department of the Studebaker Corp., will be mechanical supervisor of the Standard Parts Co., Cleveland.

David T. Laylin, formerly with Strong, Carlisle & Hammond, is appointed electrical engineer of the Standard Parts Co., Cleveland.

James A. Braden is again advertising manager of the Standard Parts Co., Cleveland, succeeding B. L. Dodge, who has joined The McNaull Tire Co., Toledo.

Charles Guernsey, chief engineer of the Service Motor Truck Co., Wabash, was called to Washington, D. C., on Nov. 15 for at least three months and will act as civilian expert, to aid in the production of trucks.

Jerry W. DeCou has resigned as factory manager of the Smith Motor Truck Corp., Chicago. He will take up some private research work for a short time before again identifying himself with a prominent automobile, truck or tractor concern.

Truck Show for Milwaukee

MILWAUKEE, Nov. 26—Because of the enormous demands upon the space available in the Milwaukee Auditorium by passenger car and accessory exhibits, the Milwaukee Automobile Dealers, Inc., has changed its plans for the tenth annual Milwaukee show, and extended the dates, originally set for January 16 to 24, inclusive, to cover a 10-day period ending January 27, and will devote the additional three days to a distinct and separate commercial car show. During the first seven days no trucks will be displayed, and exhibits will be confined strictly to passenger cars, accessories, tires, supplies, etc. The exhibits offered during the last 3 days will consist exclusively of commercial vehicles, bodies, parts, supplies and accessories of a distinctively commercial car nature.

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England To-Day Is Sorry She Cut Motor Industry Down

Good-Will of Makers Has Been Destroyed—War Profits Not Sufficient for Necessary Reconstruction

NEW YORK, Nov. 26—"The question of the future of British motor industry becomes, therefore, a matter of more than sectional importance; it becomes one of Imperial concern," says the Association of British Motor and Allied Manufacturers, Ltd., England's great body of car and parts makers.

Passenger car manufacture has been suppressed in Great Britain for 18 months, and since Nov. 1 this year the use of passenger automobiles has practically ceased. Our London correspondent writing under date of Nov. 1 says that London streets are practically denuded of motor cars except for taxicabs, and that the passenger automobile is not used except in summoning a physician or some similar mission that will satisfy the London police.

After suppressing the passenger car industry in Great Britain, the great daily press and the entire passenger car industry have gone on record in the last few weeks to the effect that the present suppressed British motor industry is more than a matter of sectional importance; it is one of Imperial concern. The British makers see their good-will, which they describe as the "sap and life" of business, sacrificed by the suppression of the industry.

British makers see the Government's plan to treat all members of the industry alike failing hopelessly in actual practice during 3 years of war.

Good-will Has Gone

Passenger car makers whose business was turned over entirely to shells and munitions are to-day without good-will, the foundations to their organizations gone, the market possessed by others.

The British motor maker sees in a truer vision to-day the importance of after-war days and reconstructive problems. He begins to realize how inadequate the 20 per cent war business profits permitted by the British Munitions Act will be for the reconstruction work.

So great a matter of Imperial concern is the present condition of the suppressed passenger car industry in Great Britain that already drastic steps for reconstruction are being formulated, steps that reach to the very roots of the industry. The steps in the plan are:

1. The entire British industry must be standardized as is the United States industry.

2. Import duties imposed with a view to strengthening British industry after the war should apply for at least 5 years.

3. Heavy taxation of users of motor cars as such should be discouraged.

4. After the war the Government, municipalities and public authorities throughout the empire should agree to buy vehicles, etc., only from British and colonial manufacturers.

5. The misuse of the term British by alien firms in Great Britain and Colonies will cease.

The complete state of the British industry is summed up in the words:

"The British motor industry has proved itself to be vital for the purpose of war; it is doubly vital for the purposes of peace.

"Therefore, if the motor industry is to profit by the lessons of the war and emerge successfully from the fierce competition which will ensue after the coming of peace, it must set to work to introduce methods altogether novel to many minds engaged on it.

Must Have Co-operation

"The war has shown us that laissez-faire must give way to hustle. Competition between firm and firm in the same line of business must give way to co-operation, specialization, and organization to the highest order."

This message is doubly important when in Government circles too many hold the position that the passenger automobile is a non-essential and as such should be one of the first industries to be curtailed and perhaps completely suppressed as in England.

This message suggests that the one thing to do to-day is to avoid hasty action and be sure of the steps taken. We do not think this is a time when individuals should be heard too loudly, but rather when the individual must suppress himself for the good of the industry. Henry Ford's offer of his entire factory and 150 assembly plants to the Government for the period of the war is very patriotic viewed from the individual point of view of Henry Ford, but we cannot interpret it as a patriotic act for the industry. Undoubtedly Mr. Ford, owning approximately 62 per cent of the stock in his corporation, does not require any profits even if the war should continue for 10 years; but what about some of his stockholders who control only 38 per cent?

Why Ford Is Different

How about the tens of thousands of stockholders in U. S. Steel should that corporation make a similar decision? How about the stockholders in General Electric, or Westinghouse, or American Locomotive, or Sears-Roebuck, or American Tobacco—should they take the same stand as Henry Ford? Where would our subscribers for future Liberty Loans, which we will in all probability place every six months, get the necessary funds, if such action were taken?

In these war days the individual must suppress himself for the general good of the industry and not elevate himself at the apparent expense of the industry. Before a conclusion can be reached as to what is a non-essential industry during the war there must be known what is needed from abroad and what we may send in exchange, for what is apparently non-essential here may be productive of most important materials for the war by being sent abroad in exchange for essential materials.

For example, we need nitrate and copper from Chile. These are essential to the production of munitions of war. We may, however, procure this nitrate and copper by shipping jewelry or automobiles to Chile. Again, we need from Argentina wool, wheat and hides and these necessities may be obtained by shipping in exchange sewing machines or typewriters. Thus the manufacture of a limousine or a typewriter may be in fact the means of producing nitrate or wool.

Packard Tests in Florida in December

NEW YORK, Nov. 23—DePalma will probably go after the 1-mile and 1-hour records in Florida in December, according to present plans. He will use the 300-in. Packard that broke the 6-hr. record recently and Bill Rader's 265 hp. Packard, which holds thirteen records from the ¼ mark up to 10.

No Vanderbilt or Grand Prize Races

NEW YORK, Nov. 23—The Motor Cups Holding Co., controlling both the Vanderbilt and Grand Prize race cups, has decided against using these cups in competition this year or in 1918. The plan of a Western promoter to hold the race in San Antonio, Tex., has fallen through on account of the desire of William K. Vanderbilt to withdraw the cups from competition.

License Used-Car Dealers

DETROIT, Nov. 22—The council ordinance committee is considering an ordinance that will require every dealer in used cars or supplies to obtain a license and report on all goods handled. In the past few weeks thieves, particularly in the tire field, seem to have become bolder, and not satisfied with taking tires from parked cars have broken into tire shops and cleaned out the entire supply. By the new ruling the source of supply of all used goods could be traced and any doubtful material questioned.

Priority for Tractors and Farm Machinery

WASHINGTON, Nov. 24—The War Industries Board has given tractors and other farming machinery a rate of priority in transportation second only to war materials. Tractors to be equipped with guns to be used by the army have the highest rating, and tractors for farm work are rated with the highest classification for freight not intended directly for military purposes.

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Last Year's Shortage Helps To-day's Sales

Unsatisfied Demand of 1916 Being Met During Lessened Demand of Present Days

NEW YORK, Nov. 24—Business is just about holding its own in this section so far as new cars are concerned. The well established makes are having a fair volume of business, which dealers state is not generally more than 25 per cent below sales of last November. One big factor in the situation is that there were more orders than cars a year ago, which makes last year's sales no indication of the business that might have been had if there had been cars to sell. As one dealer said: "We are to some extent filling last year's orders. The supply is catching up with the demand."

For instance: A year ago Buick was swamped with orders that it couldn't fill. It still has a good retail business, but it is about 20 per cent below last year's figure. Had there been plenty of cars last year the difference would be still more apparent. As it is Buick got 1282 in October and disposed of them all.

While business is holding up in a fairly steady manner to about 80 per cent of last year's record, there is hesitancy among buyers. There seems to be plenty of money, but the minds of buyers are unsettled. They are holding off.

One maker's branch reports a shrinkage of 80 per cent from last November and October business. This is a large producer, and, it is believed, the shrinkage is not all due to general buying conditions.

With two exceptions the dealers are charging the war tax to the buyer. One dealer is trying to compel the absorption by the factory and another is handling a car whose tax is covered by a raise in price. No difficulty is experienced in getting the tax, dealers state. Nothing is said about it when the sale is being made; it is simply included in the invoice.

Show Proceeds to Red Cross

ELIZABETH, N. J., Nov. 23—Proceeds from the Annual Elizabeth Show, which is to be held in the Second Regiment Armory, Dec. 3-8, will be donated to the Elizabethtown Chapter of the Red Cross, which will conduct the show. It is planned to have a parade immediately preceding the opening. Practically every dealer in the city will be represented at the show. H. G. Ford is the manager.

100,000 See Los Angeles Show

LOS ANGELES, Nov. 23—During the first six days of the show here 100,000 persons passed the ticket takers; so great was the interest in the show that it was extended three days. Practically all the cars on display were special and despite the fact their prices were higher than for ordinary stock cars, a liberal number of cars were sold. Dealers state that more than 100 prospects were transported from the show to salesrooms, and it is expected that the stimulation in interest, brought about by the show, will continue for several weks. Accessory dealers did well.

Bureau Will Allot War Work

WASHINGTON, Nov. 24—Close coordination of the Government's war requirements with the nation's industrial facilities will be developed by the Council of National Defense through the formation of a Bureau of Manufacturing Resources, the personnel of which will shortly be announced.

The plans include the bureau as a part of the War Industries Board and will deal with the situation arising when manufacturers who have facilities are asked to place their productive capacities at the Government's disposal or to turn a part of their facilities to war work. The bureau will attempt to distribute such work so there will be a minimum of unsettlement in any one industry.

The council will make no arbitrary classification of any industry as an essential or non-essential, but will allow the question of curtailment to be decided by the available supply of raw materials, fuel and transportation facilities.

War Business for General Motors

FLINT, MICH., Nov. 24—The General Motors Co. has received substantial contracts for Liberty engines and other munitions work from the Government. It is understood that this work will be done by the Buick Motor Co., of Flint, and the Cadillac Motor Car Co. At present Cadillac is completing its first war order, which was chiefly machines for army use. These are being shipped daily and are apparently the standard touring except that they are painted the olive drab color. It is also reported that these recent orders received are among the largest secured up to the present date.

Standard Parts Managers Meet

CLEVELAND, Nov. 24—Plant managers of the Standard Parts Co. held a convention here this week. About 50 representatives were present and the properties of the three Cleveland plants were inspected. Production plans and co-operative methods for the coming year were discussed, and at a dinner in the Hotel Statler it was announced that the October output of the Standard Parts Co. was the largest in its history.

Government Gets General Vehicle Plant

NEW YORK, Nov. 24—A report is current that the plant of the General Vehicle Co. in Long Island City has been purchased by the Government and will be used for war work. It is stated that the price paid for the plant was $2,500,000. The General Vehicle Co. is owned by the Peerless Motor & Truck Corp., Cleveland, and the latter concern states that the Long Island City plant will be used for some time in the manufacture of G. V. electric trucks.

M. A. M. Asks Aid of Those Not Members

Plans to Use Its Organization for Co-ordinating War Activities of Whole Trade

WASHINGTON, Nov. 24—The Motor & Accessory Manufacturers has taken steps to break down all barriers between members and non-members so far as war work is concerned. An effort is to be made to co-ordinate the activities of the entire accessories and parts trade in supporting the Government in its prosecution of the war.

As a first step, the name has been changed to Motor & Accessory Manufacturers' Association. One reason is that this makes Government co-operation easier because the Government recognizes associations as intermediaries between the Government and different trades.

An office has been opened at 604 Ouray Building, which is also the location of the National Automobile Chamber of Commerce. Manager L. M. Bradley has located permanently in Washington.

The Automobile Industries Committee will open an office nearby in the Second National Bank Building on Seventh Street, and all three organizations will co-operate. Not only will the M. A. M. A. and the N. A. C. C. lend all possible assistance to the Automotive Industries Committee, but it will also be a clearing-house for members of the entire car and parts trade.

Automobile Committee Completing Organization

WASHINGTON, Nov. 24—The Automotive Industries Committee is at present forming points of contact with army and navy department heads to get acquainted and to learn the war needs of the Government. Next week it will perfect its organization to include efficiency engineers, industrial engineers, a large clerical force, etc., and will have an organization costing $75,000 a year to maintain. After the organization is completed, the engineers will travel about the country investigating and analyzing plants to determine the capacity of various plants and the nature of the Government work for which they are best fitted.

May Reorganize Disco

DETROIT, Nov. 24—At present reorganization of the Disco Electric Starter Co. is being considered and it is possible that the concern may go through the bankruptcy courts. It is expected that creditors will receive an excess of 33 cents on the $1.

Lists Milling Cutter Deliveries

CLEVELAND, Nov. 23—The Cleveland Milling Mach. Co. is sending out, semi-monthly, a list of stock milling cutters for immediate delivery.

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Minnesota Organizes Car Owners' Service

Motor Reserve Extended and Owners Will Transport Soldiers on Official Business

MINNEAPOLIS, Nov. 24—The Motor Reserve Special Service No. 1 plan of the Minneapolis Automobile Trade Association has proved a success, has been indorsed by Governor J. A. A. Burnquist and Adjutant General W. F. Rhinow, and has been forwarded for approval to the government. This plan affects owners of automobiles and is operated in various cities of Minnesota through dealers. It calls for squads of 10 car owners who will give service of their cars for transportation of representatives of departments of the federal and state government, under direction of some dealer.

This plan follows closely on the heels of the regular Motor Reserve of car owners directed by dealers in squads of 27 cars of the same model each, owners of which sign an agreement to be at the call of the county sheriff for emergency work in public safety service, a plan indorsed by the state safety commission. The latter has been organized in 84 counties with a lieutenant and sub-officers for the squads. The former organization has been perfected in 100 towns.

Secretary R. B. Simning, in charge of the work, reports that from German settlements the offers are coming in on regular application blanks. In some cities more than one squad has volunteered, and the daily mail brings in requests from other cities for the plan of operation.

Simning expects the Minneapolis plan to become national in scope through indorsement by the federal government, as it will give quick and efficient local transportation service for department of justice men, war and navy representatives, and so on through the government list.

Further Developments in Sun Co.'s Difficulties

CHICAGO, Nov. 24—Further developments in the case of the Sun Motor Car Co. of Elkhart, Ind., which was placed in the hands of a receiver in September were revealed Saturday, when sixty-one stockholders started a legal battle in the United States district court here in an effort to get back some $110,000 invested in Sun stock. The petition alleges that Andrews & Co., Chicago brokers, agreed to finance the Sun and were to take more than $247,000 of the $250,000 preferred, getting a like amount of common as bonus. It is further alleged that Andrews & Co. failed to turn over the cash in proper manner and as a result the whole financial mechanism, and the factory organization also, collapsed. Andrews, when asked about the suit, stated that they have offered to refund to their clients for the Sun stock by issuing them stock whose value is unquestionable, that it was no fault of theirs that the plant was not a success but was due to the inability of makers of motors for the car to deliver. That the brokers are the heaviest losers was presented in a statement by A. M. Andrews, manager of Andrews & Co., who says: "Financial enemies of ours have been buying up the stock and are using it, I would say, to blackmail us. We lost more than half of all the money lost."

More Expansion for Champion

TOLEDO, Nov. 24—With the purchase of three buildings and several acres of ground adjoining its present plant, the Champion Spark Plug Co. is proceeding to increase its present capacity of 94,000 plugs per day. The buildings of the F. Bissell Co. and the City Foundry Co. and, in addition, a tract of ground covering four acres have been acquired. The present home of the Bissell company provides an additional 25,000 sq. ft. and a large storehouse. The installation of some 70 or 80 automatic machines will be added which, with those now in use, will make a total of approximately 200 in operation. The property of the City Foundry Co. will be added to the present cold steel drawing mill. The combined mills will be capable of turning out 100 tons of material each day.

Harroun Production Increasing

WAYNE, MICH., Nov. 24—Production is increasing in the plant of the Harroun Motor Co. since its refinancing a short time ago. Twenty-five cars were completed and shipped last week. It is expected that three times that number will be completed this week, and production will be stepped up to normal as fast as possible. Approximately 300 completed engines are on hand, material is coming in very well, and the labor market in this locality is good.

Pullman Property Re-Auctioned

YORK, PA., Nov. 24—The entire property of the defunct Pullman Motor Car Co. except the name and good will is to be sold at auction at the factory commencing Dec. 4 by Samuel L. Winternitz & Co., Chicago. The entire assets of Pullman were sold at a previous auction and the property, except the name and good will, were obtained by Winternitz who will re-sell them. This consists of the real estate, machinery, equipment, parts, merchandise, trucks and finished cars.

16-Valve Car from Anderson

INDIANAPOLIS, Nov. 24—The Laurel Motors Corp., Anderson, incorporated with a capitalization of $2,000,000, has acquired the experimental plant of Remy Brothers to begin the manufacture of the Roof 16-valve overhead attachment for Ford cars. The company expects to place a medium-priced sixteen valve motor car on the market. It is estimated that 1000 cars would be manufactured the first year.

Strike of Repairmen Peters Out in Boston

Men Demanded Eight-Hour Day and Nine Hours' Pay—Few Men Went Out, Most Are Back

BOSTON, Nov. 24—The strike of repairmen in some of the Boston service stations seems to have petered out. The men wanted an eight-hour day with nine hours' pay, and they made their demands upon several of the dealers. The strike was anticipated and the demand was refused. The men did not all go out, and as business was quiet the dealers did not mind the strike. Some of the dealers were going to lay off men anyway and the strike gave the opportunity to drop them. A number of the men have gone back, but some are out in a few places.

Madison Elects Jacobson

MADISON, WIS., Nov. 24—O. S. Jacobson of the Jacobson-Austin Auto Co., Madison, has been elected chairman of the motor car dealer and garage division of the Madison Association of Commerce, organized recently as a consolidation of four civic and commercial associations of Madison. L. F. Schoellkopf, head of the L. F. Schoellkopf Auto Co., has been elected president of the general association, he having been largely responsible for the merger of activities. The dealer-garage division elected O. F. Brewer of the Brewer-Mosel Co. as secretary. The section plans to hold a show in February or March, and arrangements are being made by a special committee consisting of Frank M. Wootton of the Madison Motor Car Co., Emil Hokanson of the Hokanson Buick Co., and Secretary Brewer.

Fight Speculation in Fords

ST. LOUIS, Nov. 24—Thomas G. May, sales manager of the Ford assembly plant here, is leading the authorized Ford agents of this city in an effort to head off speculation in Ford cars. The complaint is that free lance Ford agents are buying cars through unknown persons, erasing the numbers and other marks, and selling them at an advance to persons willing to pay a premium for immediate delivery. The erasing of the numbers is regarded as a very dangerous feature of the business. This is done to keep the Ford agent from tracing the sale.

Erie Plans 1-Tonner

PAINESVILLE, OHIO, Nov. 24—The Erie Motor Car Co. has completed the design of its 1-ton truck and plans to start production at an early date. This truck is constructed throughout of standard units and incorporates a Continental engine, Fuller gearbox and clutch, Torbensen rear and Columbia front axles and Lavine steering gear. It has 127-in. wheelbase and is mounted on solid tires 34 by 3 front and 34 by 4 rear. A starting and lighting system is part of the regular equipment.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1295	†1295	1295	....	1920	....	....
6-60	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN-SIX																	
A	6-3½x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Conn	Zenith	Wsths	DP	3	120	33x4	SS	....	1435	....	....	2165	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	34x4	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	23.4	Remy	Rafid	Remy	DP	3	120	34x4	SS	1295	1295	....	....		....	1545
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	†1635	1635	....	2400	....	1935
AUSTIN																	
Hv-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BELL																	
17	4-3½x5	19.6	A.Kent	Zenith	Dyneto	D	3	112	31x4		....	895	....	....	....	....	....
BIDDLE																	
D	4-3½x5½	22.5	Dixie	Zenith	G & D	DP	4	122	32x4	QD	2200	2350	†2275	....	....	3800	3900
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1385	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	....	....	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1465
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 / 125	35x5 / 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
T17	4-3½x6	21.0	Conn	Rafid	A-Lite	C	3	120	34x4	SS	†1190	....	1190	....		....	....
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	{117 / 122	32x4 / 34x4	SS	1365	1365	1450	....	1850	2025	....
CHANDLER																	
17	6-3½x5	29.4	Bosch	Rafid	G & D	D	3	123	34x4	SS	1595	....	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Conn	Zenith	A-Lite	C	3	102	30x3½	C	635	635	....	....	1060	....	....
FA-5																	
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.45	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1355	1355	†1355	....		....	....
COLE															{2495		
860	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1995	....	1995	2495	{2695	....	....
COLUMBIA																	
	6-3½x4½	25.3	A.Kent	Stmbg	W.Lord	DP	3	115	32x4	....	†1495	1350	....	....	1995	....	....
COMET																	
6-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†935	995	....	....	....	....	....
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114½	32x3½	SS	†995	{935 / 995	....	1195	1275	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†3100	3100	3100	....	....	....	....
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1785	1785	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D		119	32x4	SS	†1395	1395	†1425	....	1875	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†895	895	....	....	1295	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
DORIS	2-5 x4	...	Own	Dobl Stmb	Wagner			135	35 5	..	..	....	2500	..	....	....	....
MADISON																	
4								124	34x4	....	....	....	....	....	....	....	....
	6-3½x5½	23.4	Remy	Rafid	Remy	DD	3	115	34x4	SS	†1485	1485	1485	1095	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795		....	1095		....	865
B	6-3½x5½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	.	1375	1375	....	....
MARION HANDLEY																	
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	†1850	....	1850	....	2500	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	4950	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	†745	745	....	1095	1095	1095	855
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Raceabout	3250	...	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wsths	F	.	106	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	†1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1575	1575	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1950	....	1950	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	110	32x3½	SS	995	995	....	....	....	....	....
M-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	†635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	1095	....	....	....		....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	....	....		1195	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafid	Delco	DD	3	125	34x4	SS	†1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2450	2450	....	....
MURRAY																	
1918	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	..	2800	2800	2800	3300	....	3750	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-684	6-3½x5	25.4	Delco	Marvel	Delco	P	3	121	34x4	SS	1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.7	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	†990	990	....	{1150 / 1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	....	....	....	....
37	6-2½x4½	18.9	Delco	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	37	Conn	Carter	A-Lite	D	3	114	32x3½	....	†965	965	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	†915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	{104 / 106	31x4	C	780	795	†840	....	1240	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.6	Bosch	Zenith	O-M	OM	6	136	35x5	SS	†3950	†3950	3950	....	....	5000	....
PACKARD																	
3-35								{136					....	4100	....	....	5650	....
3-35	12-3 x5	43.3	Delco	Own	Bijur	DD	3	{138	35x5	QD	....	3700	3700	5050	....	5250	....

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DODGE BROTHERS																			
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	SS	885	885	....	1350	1350	....	....
DORRIS																			
I-C-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	130	36x4½	SS	....	....	2785	3325	3350	4150	....
DORT																			
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	105	30x3½	QD	‡725	725	....	....	1095	....	845
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....
ELGIN																			
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	1645	....	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.4	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1375	1345	....	1685	....	....
FIAT																			
55	4-5½x6½	42	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	....	D	2	100	30x3½rC		345	360	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4 33x4½	SS	2000	2050	....	2850	2950	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡875	875	....	....	....	....	....
HAL TWELVE																			
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2600	†2600	2600	....	3500	4500	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....		785	....	....	....	....	....
HARVARD	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	†965	....	....	....	....	....	....
HOWARD																			
	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	....	....	....	....	....	....
HAYNES																			
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																			
196	6-3 x4½	21.6	Remy	Stewart	Aploo	C	3	116	32x3½	SS	....	1085	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Aploo	C	3	116	34x4	SS	†1285	1285	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	†1750	1650	1950	2175	2925	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x1	....	1250	1250	....	....	....	....	....
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1485	1485	....	....	....	....	....
NU	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1640	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†950	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	1705
JONES	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	....	....	1675	1675	....	2550	....	....
JORDAN																			
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2650	3300	....
KING																			
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	‡1585	†1700	1650	....	2300	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1295	1295	1395	1735	1735	....	1735
Double-6	12-2½x5	39.7	Delco	Stmbg	Own	DD	3	...	34x4½	....	1585	....	2250	....	2650	....	2650
KLINE																			
6-38-G	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1395	1395	†1395	....	....	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1345	....	....	1510	....	....
6-R	6-3½x4½	25.4	Conn	Rafid	Wsths	P	3	123	34x4	QD	....	....	1585	....	1785	....	....
LIBERTY																			
6	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																			
38 Series II	6-4½x5	43.3	Berling	Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	133	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	133	35x4½	SS	....	....	1650	....	....	....	....
PAIGE																			
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1330	1330	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	1775	2850	....	3230	....
PAN-AMERICAN																			
	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1500	....	....	....	....	....
PARTIN PALMER																			
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1295	1265	1295	....	....	....	....
PATHFINDER																			
3-A, B, C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	3250	3250	3250	....	....	....	....
PEERLESS																			
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																			
6-B	6-3½x5½	27.8	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																			
4-36	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..	825	825	‡825	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	†1385	1385	....	....	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡965	985	....	....	....	....	....
ROAMER																			
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	DP	3	127	34x4	SS	2150	1850	....	....	....	....	....
ROSS																			
	8-3½x5	33.8	....	....	W.Lord	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	395	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	935	....	1395	....	....	....
SAYERS	6-3½x4½	25.3	Delco	....	Delco	P	3	....	32x4	....	....	1295	....	....	....	....	....
SCRIPPS-BOOTH																			
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1425	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	1250	....	....	....	....	....	....
SIMPLEX																			
5	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
17	6-4 x5½	38.4	Boschr	Rafid	Wsths	DD	4	139	35x5	QD	3800	†3800	3800	....	....	4750	....
STANDARD																			
8	8-3½x5	33.8	Splitdf	Zenith	Aploo	D	3	127	35x4½	....	†1950	....	2000	....	2500	3500	....
STANLEY																			
Steamer	2-4 x5	....	....	....	....	..	.	130	35x4½	SS	‡2200	2200	2300	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	‡1785	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	117½	32x4	....	‡1485	1485	....	....	1985	....	....
STUDEBAKER																			
SF-4-40	4-3½x5	24.2	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡1025	....	1050	....	....	....	1250
ED-6-50	6-3½x5	36.4	Remy	Schebler	Wagner	C	3	122	35x4½	SS	1335	‡1335	1385	1850	1850	2750	1565
STUTZ																			
S	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	130	32x4½	SS	2550	†2650	*2750	....	....	....	....
S.Bearcat	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	....	....	....	....	....	....
SUN																			
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1265	1265	†1265	....	1835	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	2790	2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	Bosch	Own	L.N.	P	4	{124½ 137½	33x4½ 37x5	QD	†4600	....	4600	5650	5650	5800	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS		....	1525	2175	2225	2325	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2000	....	2700	2800	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titan	A-Lite	C	3	120	33x4½	SS	†1365	....	1365	....	2045	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2950	2950	2900	3865	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....
WOODS'																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag		124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡5-passenger.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Boston Office for Commonwealth

NEW YORK, Nov. 24—The Commonwealth Finance Corp., 100 Broadway, has opened a new office, suite 302, 126 Massachusetts Avenue, Boston. W. H. Billings, now representing this company in Boston, will be in charge.

To Make Hydraulic Gearshift

EAU CLAIRE, Nov. 24—The United States Auto Gear Shift Co., Eau Claire, Wis., has been organized with a capital stock of $1,000,000 by Eau Claire capital to manufacture and market a new type of hydraulic gearshifting device for cars and trucks. The device was invented and has been patented by L. A. Laursen. The new company has purchased a large tract of land near the plant of the Gillette Rubber Co. at Eau Claire and expects to break ground before the beginning of the new year for a shop group costing about $50,000. The Laursen hydraulic gearshift will be manufactured exclusively for the time being, and later the production of other devices invented by Laursen will be undertaken. The gear shift will retail at about $55. It weighs only 16 lb. It is operated by hydraulic pressure and oil is used as the fluid. Officers have been elected as follows: President, N. J. Whelan; vice-president and secretary, L. A. Laursen; treasurer, J. T. Joyce; directors, L. A. Laursen, J. T. Joyce, N. J. Whelan, R. B. Gillette and Edward Hutchens.

Cole Prices $200 Higher Jan. 1

NEW YORK, Nov. 24—The Cole Motor Car Co., Indianapolis, will raise its prices $200 on Jan. 1 and will bring out two new sport models of 4-passenger and 7-passenger capacities. The new prices will be $2,195 for the 2-passenger roadster. The 7-passenger touring car will sell for $2,195; the coupe for $2,695, and the 864, 865 and 866 sedan at $2,895. $2,795 and $2,995, respectively.

Standard Aircraft Has $5,000,000 Capital

ELIZABETH, N. J., Nov. 24—The Standard Aircraft Corp., which recently bought the John Stephenson Co. plant here and which also has a factory in Plainfield, N. J., has incorporated in New York with a capital of $5,000,000, divided into $2,000,000 preferred and $3,000,000 common. Harry Bowers Mingle is president and the board of directors is composed of the following: C. H. Day, C. V. Bradford, D. L. Meenan, J. C. G. Stratt and H. B. Mingle. It is expected that sixty airplanes a week will be the normal output.

Coming—THE SHOW CALENDAR—*Events*

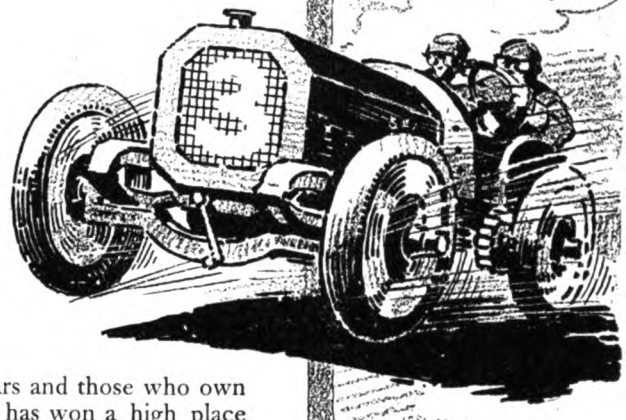
Is YOUR Show Listed? Send Us the Dates

Springfield, Mass.	Auditorium Building, United Shows Co.	Dec. 3-9
Akron, Ohio	National Guard Armory. C. G. Armstrong.	Dec. 8-17
Ft. Dodge, Ia.	Ft. Dodge Auto Dealers' Assn G. W. Tremain, Mgr.	January 1918
New York, N. Y.	Salon, Automobile Salon, Inc., Astor Ballroom. John R. Eustis, Mgr.	Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-12
Kansas City, Mo.	Third Annual Tractor Show	Jan. 11-16
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wannamaker's Garage.	Jan. 12-19
Rochester, N. Y.	Tenth Annual Exposition Park C A. Simmons, Mgr.	Jan. 14-19
Detroit, Mich.	Willis Ave. Overland Service Station.	Jan. 19-26
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino. B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
York, Pa.	York Auto Dealers' Assn., Queen St. Tabernacle. T. F. Pfeiffer. Sec.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn. Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson - Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 28-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland. Mgr.	February
Minneapolis, Minn.	Minneapolis Auto. Trade Assn Walter B. Wilmot, Mgr.	Feb. 2-9
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn. E. E. Peake, Mgr.	Feb. 9-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet & Dean Schooler, Mgrs.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Des Moines, Ia.	Second Annual Truck, Auditorium. Dean Schooler & C. G. Van Vliet, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., Twenty-third Regiment Armory. I. C. Kirkham, Treas.	Feb. 22-Mar. 9
	Commercial Vehicles	Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn., Auditorium.	March
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clark G. Powell, Mgr.	Feb. 23-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13

Conventions

		1918
New York	Convention, National Assn. of Auto Accessory Jobbers, Hotel Astor.	Feb. 11-16
Columbus, Ohio	Convention Ohio Automobile Trade Assn., Virginia Hotel.	Dec. 4

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A Place Won by Merit

Among those who own motor cars and those who own motor boats Texaco Motor Oil has won a high place through the sheer merit which engenders the mouth to mouth advertising that satisfied users are always glad to give.

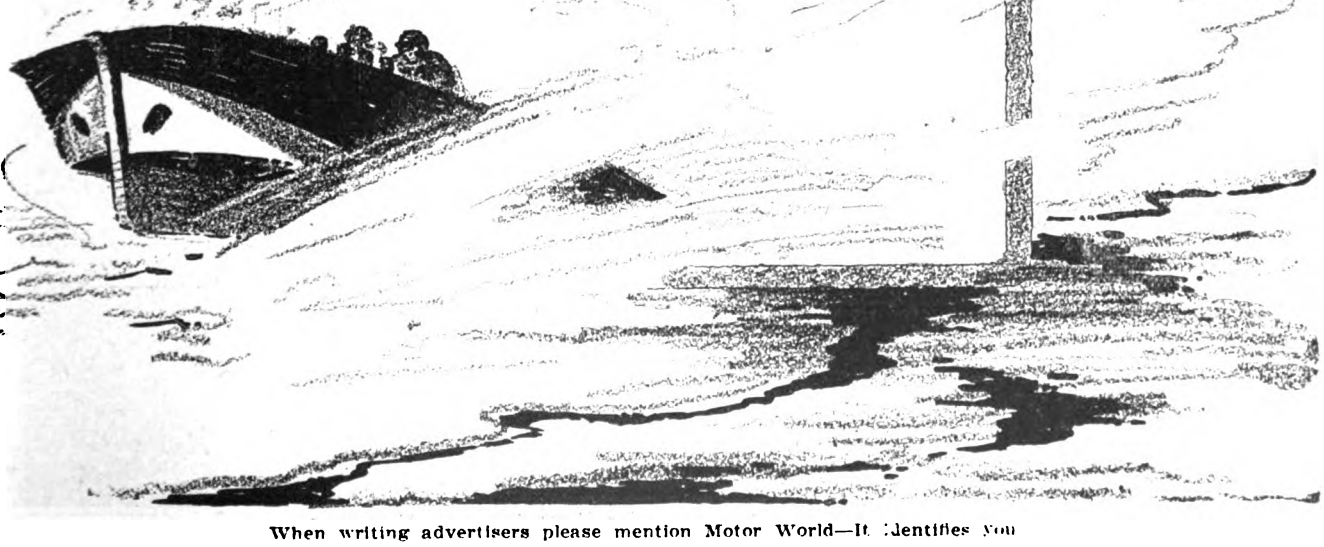
TEXACO MOTOR OIL

has obtained and has retained the good will of thousands of users by its downright, unadulterated, high quality.

Texaco Motor Oil reduces friction to a minimum thereby enabling your motor to operate at its highest efficiency. It gives a perfect seal between piston and cylinder and allows no gasoline to leak into the crank case. Due to certain basic qualities it *cannot* deposit a hard carbon crust in the motor. If, through the feeding of too much oil to the motor, any carbon residue should be left, it will be in the form of a soft, fine soot that can do no harm and is easily wiped off.

Texaco Motor Oil may be obtained at most good garages. The safest way, the best way, to buy is in one or five gallon cans. You will know it by its clear, clean color.

THE TEXAS COMPANY
New York Chicago Houston
DISTRIBUTING OFFICES IN MOST CITIES



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Strom BEARINGS Strom BEARINGS Strom BEARINGS Strom BEARINGS Strom BEARINGS

Announcing

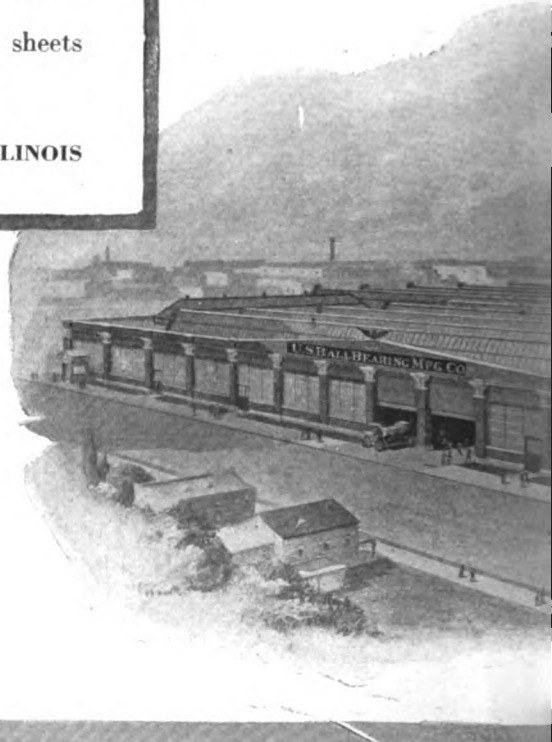
Strom BEARINGS

HEREAFTER the product of the U. S. Ball Bearing Mfg. Co.—formerly designated as U. S. Ball Bearings—will be known by the trade name of Strom Bearings.

In announcing this change of name of its product the U. S. Ball Bearing Mfg. Co. also desires to call your attention to the fact that there has been a material increase of types and sizes of its standard bearings, details of which are shown in the Strom Bearing data sheets which will be issued in a few days.

If you care to be supplied with these data sheets kindly write.

U. S. BALL BEARING MFG. CO.
Conrad Patent Licensee
Palmer St. & Kolmar Ave. CHICAGO, ILLINOIS



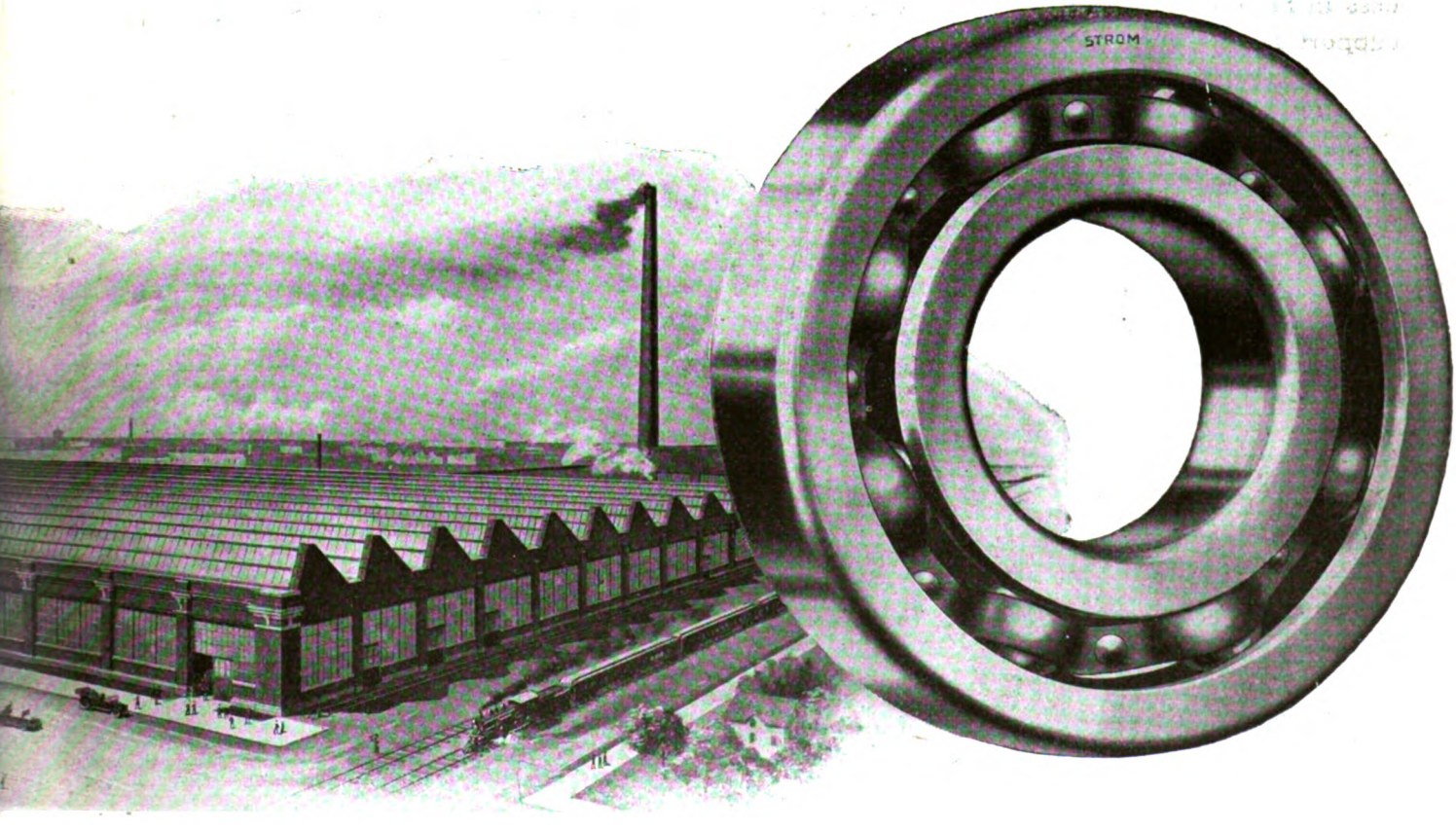
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Strom BEARINGS

FORMERLY U.S. BALL BEARINGS



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Saxon Sales Bulletin

No. 1 *Issued Monthly by the* SAXON Strength-Economy-Service *Saxon Motor Car Corp., Detroit*

Putting the Dealer on the Right Basis

It is our conviction that the man who invests his money, time, and effort in building up business in his territory should receive thorough support from the factory.

There is nothing about this that sounds new to dealers. Undoubtedly it has been said one or more times to nearly every dealer in the business.

And we believe that in the vast majority of cases the automobile companies making such a statement to their dealers are sincere.

We believe that every company realizes that dealer support is vital to better business.

But, unfortunately, for one reason or another, or for a combination of circumstances, many automobile companies are not in a position to carry through their beliefs along such lines.

And, fortunately for dealers in the Saxon organization, the Saxon Motor Car Corporation is.

So that the man who makes a connection with the Saxon Motor Car Corporation finds himself in a particularly advantageous position.

Broadly outlined, the steps taken by the Saxon Motor Car Corporation to insure its dealers of steady, profitable, increasing business, are these:

First, providing them with a good car, priced with fairness, and offering a better value to the purchaser than any other car in its price-class.

Second, maintaining a Service Department, ably organized, soundly managed, and in a position to ship parts within 12 hours from date of order received.

Third, a Claim Department that is fair and just in its adjudication of claims and that keeps in mind always the dealer's side of the question. No legitimate claim has ever been rejected in the history of the company.

Fourth, a Sales Department that is in constant touch with the entire dealer organization; that is regularly providing assistance of a real sort in respect to sales promotional work; and that does not believe "loading up" the dealer a proper procedure.

Fifth, an Advertising Department that invests one-half million of dollars yearly in national magazines, trade papers, farm papers, women's papers; and that stands ready to cooperate in newspaper advertising locally on an equitable basis, with each dealer.

If you find such a program of cooperation interesting it would be worth while to get in touch with the factory in regard to several good territories as yet unassigned. (195

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STEPHENS *Salient Six*

A Commercially Perfect Engine

Inspection during the progress of construction of the Stephens Salient Six Engine is as systematically accurate as the most delicate machining process on any of its parts. Absolutely no operation is performed in the building of the motor without an immediate inspection following.

The inspection is checked and rechecked in every operation. Before assembly the parts are gone over once more; after assembly another inspection; then, when the engine is running under its own power on the testing block, yet another inspection.

Complete engines are as readily rejected if they have the slightest fault as any of their parts are rejected before assembly.

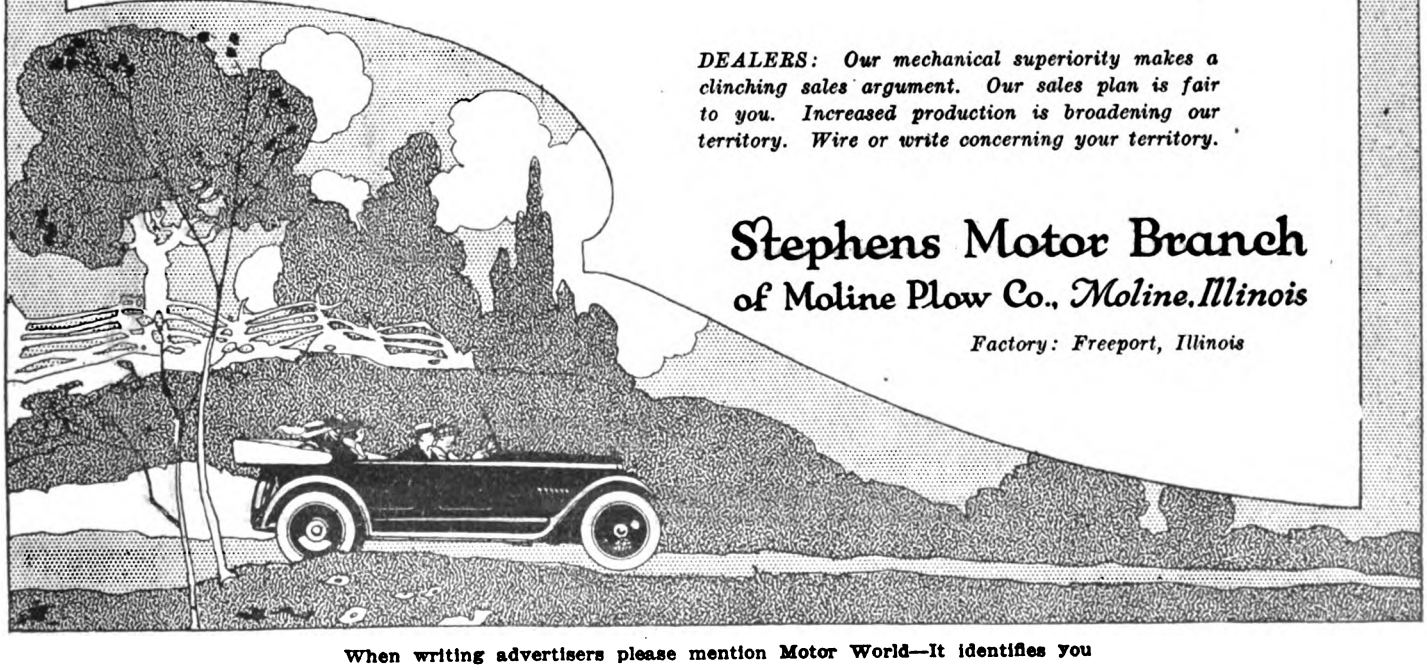
A commercially perfect engine is the result of this thoroughness. The accurate mechanical balance together with the design of the power-plant, which is the most advanced engineering achievement of the present day, accounts for the phenomenal performance of this PERFECTED OVERHEAD-VALVE ENGINE.

It is combined perfection of design, material and workmanship which creates THE ENGINE WHICH BURNS ALL THE GASOLINE.

A MODEL FOR EVERY USE

Three-Passenger Roadster	$1485
Four-Passenger Touring	$1550
Five-Passenger Touring	$1485
Five-Passenger Victoria	$1660
Five-Passenger Touring Sedan	$1985

Prices f. o. b. Factory



DEALERS: Our mechanical superiority makes a clinching sales argument. Our sales plan is fair to you. Increased production is broadening our territory. Wire or write concerning your territory.

Stephens Motor Branch
of Moline Plow Co., *Moline, Illinois*

Factory: Freeport, Illinois

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Stewart PRODUCTS

Stewart Speedometer $25

Stewart Lens $2 per pair

Progressive Dealers Know It Pays To Sell Leaders Only

Live dealers everywhere—men who do a big business and are making big money—know by experience that it pays to sell Leaders Only. They stock, sell and feature Stewart Products.

The dealer who has achieved really big success does not waste his time, energy and money in trying to "put across" unknown accessories. He knows that cheap accessories are a speculation, pure and simple, both for him and his customers. He is not willing to put himself in a class with the makers of products that are "just as good." He banks on a steady, consistent "turnover." He handles the one established line—the one that is universally accepted as standard. He carries a complete stock of Stewart Products.

Stewart Products offer you a steady source of income all year 'round—not only in summer, but also in winter, when you need it most. Determine right now to sell nothing but leaders for 1918. Concentrate on, "boost," feature and sell Stewart Products—the fastest-selling and easiest-to-sell of all automobile accessories. You will have the entire confidence of customers the minute they enter your shop. You will have satisfied customers who will come again—not only for other Stewart Products—but for everything in your entire line.

Stewart-Warner Speedometer Corporation
CHICAGO, U. S. A.

Stewart V-Ray Spark Plug $1

Stewart Vacuum System $10

$5 Stewart V-Ray Searchlight
West of Rockies $5.50

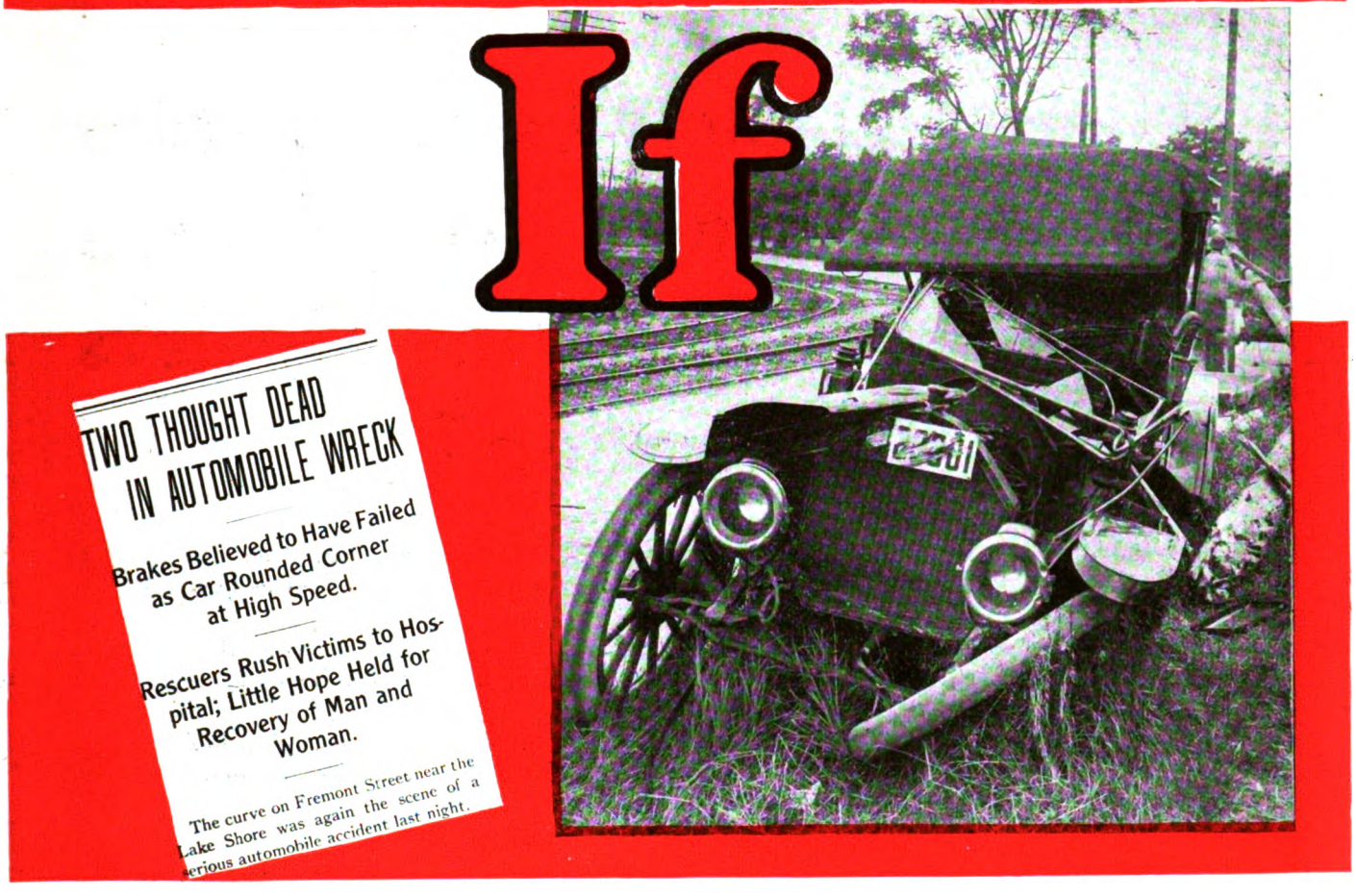
Stewart Motor Driven Warning Signal $6
Hand Operated Type $3.50

$9 Stewart Autoguard
West of Rockies $9.75
Special Ford Model $7.50
West of Rockies $8.25

Stewart Instrument Board for Ford Cars $11.25

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If



IF the brakes had only held—if GARCO had only been used—this accident would never have happened. Instead of two lives being snuffed out like a candle—instead of an inert mass of wreckage—this car would have been speeding along the road.

Take this big IF out of motoring. Protect your customers. Back your good workmanship — build your reputation on the great wear-resisting quality built into every foot of GARCO Brake Lining.

On a straightforward, dollars-and-cents basis alone it will pay you to investigate GARCO fully. Ask your Jobber or drop a line to us, NOW — today. Let us tell you about GARCO Brake Lining, GARCO Transmission Lining for Fords and the other asbestos automobile specialties we manufacture.

GENERAL ASBESTOS & RUBBER CO. MAIN OFFICES and FACTORIES **Charleston, S. C.**

Branches and Complete Stock: 58 Warren Street, New York **311 Water Street, Pittsburgh**
106 West Lake Street, Chicago

Pacific Coast Distributors, HUGHSON & MERTON, INC., 77 O'Farrell Street, San Francisco, Calif.
LOS ANGELES, 1229 South Olive Street PORTLAND, 326 Ankeny Avenue SEATTLE, 806 East Pike Street

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Is There a Dealers Organization in Your Town? Are You a Member of Your State Dealers Association?

Some merchants have a tendency to think that they can't learn from the other fellow, but as no two of us are alike, it is also true that no two of us have exactly the same ideas on any given subject.

When two or more get together to discuss a subject there are as many ideas as there are men. One ideal will be the best and each man will give every other man a new angle on the problem.

THIS MUST PROVE HELPFUL—If you are there with an open mind and ready to profit by the best suggestions made regardless of whether it is yours or not.

Take Part in the Meetings

The Human Clam seldom gets anything from these meetings because he is so busy keeping his mouth shut that he don't have time to get the good out of the discussion. The best meetings for you are the one sin which you take a part.

You should be active in your local County and State association—It's to your own interest to do so and it is the way to meet and overcome the difficult problems of your business.

FREE TO DEALERS

The Assisting the Trade Committee of the National Association of Automobile Accessory Jobbers has caused a book to be printed in which is told one man's way of conducting every department of a Garage business. It's free for the asking. Of special interest to new dealers and those who have awakened to the need of more systematic methods in the conduct of their business.

Address:



National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BUILDING CHICAGO, ILL.

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RACINE Country Road and Multi-Mile Cord TIRES



More Profit for Dealers Who Sell Them

Racine Country Road and Multi-Mile Cord tires have built a splendid quality reputation. They have brought profits for dealers year after year.

National Advertising

Now even greater profits are to roll in for dealers handling this proved quality line. A strong campaign of national advertising is to bring more buyers than ever. Full pages in The Saturday Evening Post—The Country Gentleman—leading farm papers, etc.

Every tire user in your locality will read these sales-building messages week after week throughout the tire buying months.

Immediate Deliveries

Distributors for Racine Country Road and Multi-Mile Cord tires are at all principal distributing points. These top-notch tire men carry complete stocks always. They make immediate deliveries to meet the dealer's needs.

This is an opportunity to gain the most desirable tire connection. Quality plus *national advertising*. Write today.

IMPORTANT: Every genuine Racine Country Road and Multi-Mile Cord tire must bear the name

RACINE RUBBER COMPANY
RACINE, WIS.

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DAYTON

QUICK DETACHABLE WIRE WHEELS

MADE UNDER LICENSE

For Ford Cars

QUICK CHANGE

Five detachable and interchangeable wheels and four inner hubs make a set. Unscrewing and replacing the hub cap is all that is necessary to change the wheels. The spare wheel may be carried with tire inflated, ready for instant mounting. When the thermometer stands at zero you will appreciate the quick change feature of Dayton Wire Wheels.

ECONOMY

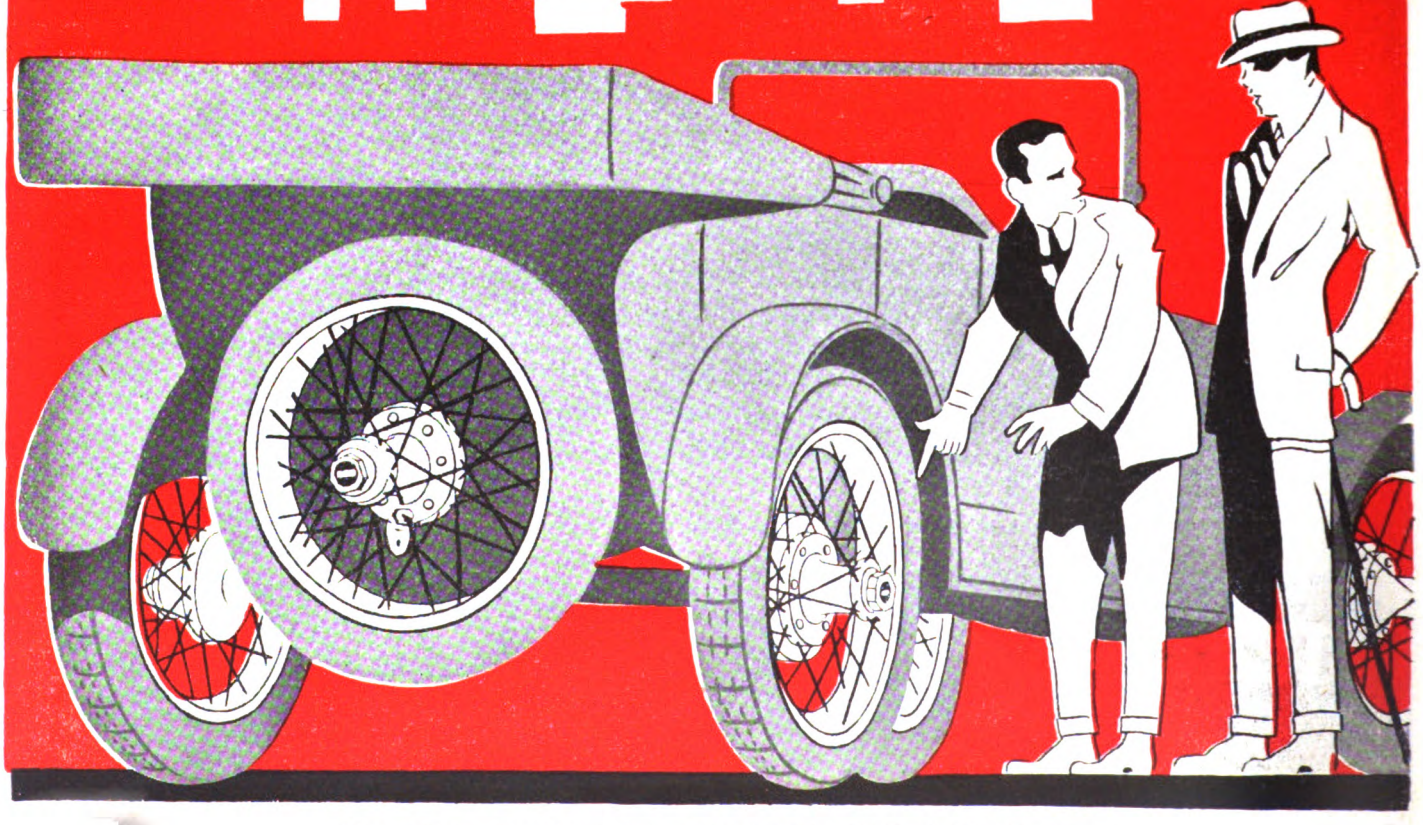
A 5,000 mile tire becomes a 6,250 mile tire when mounted on Dayton Wire Wheels. This is due to heat radiation and the remarkable resiliency of the "Daytons." Furnished in any desired color.

DEALERS AND JOBBERS

There are excellent profit possibilities in Dayton Wire Wheels. Get your share of the profits.

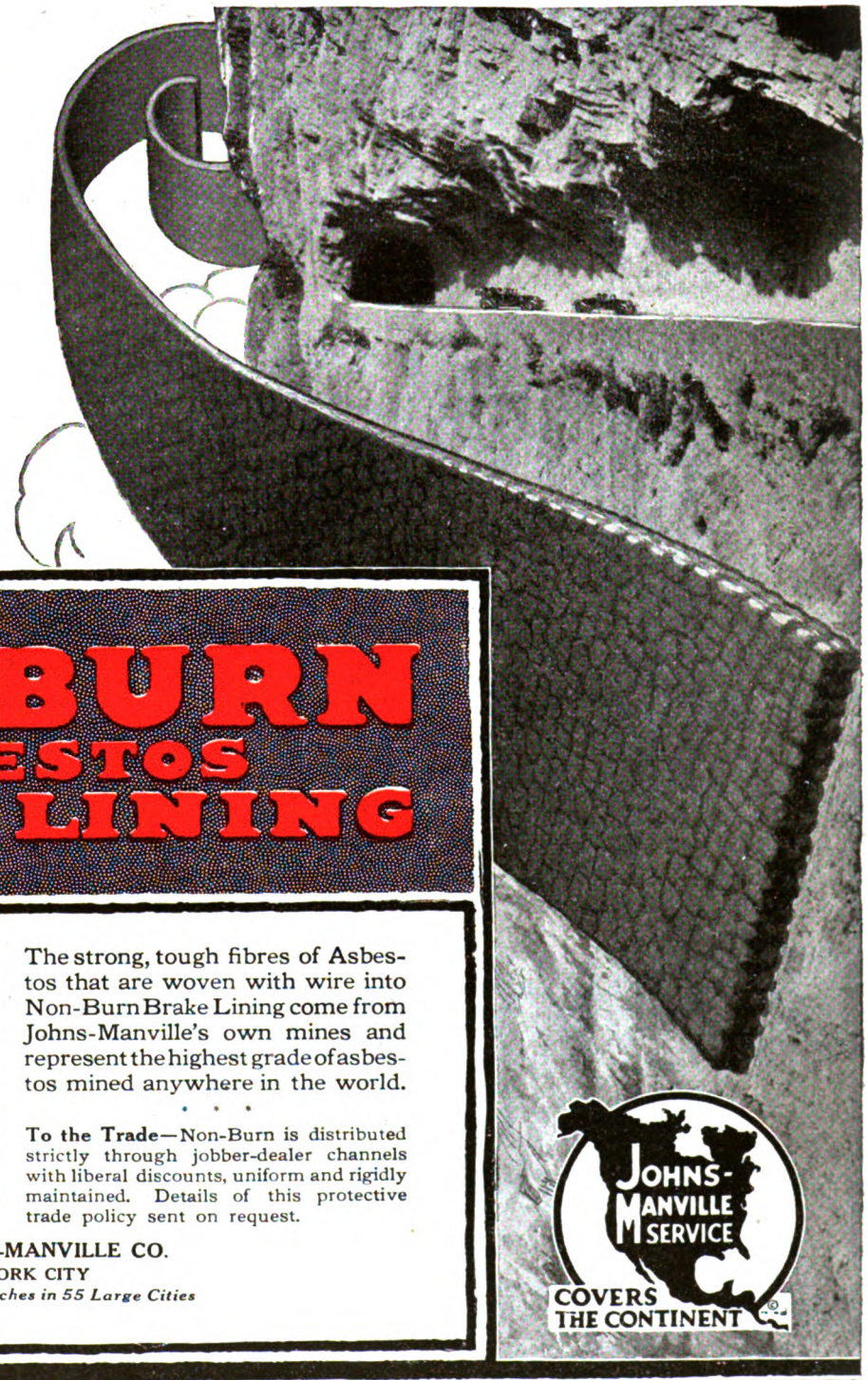
DELIVERIES AT ONCE!

THE DAYTON WIRE WHEEL COMPANY, 826 Miami Road Dayton, Ohio



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Johns-Manville



THE one thing in brake lining that counts most for dependability and long life is the quality of the asbestos that goes into it. That is why Non-Burn has the advantage over other brake linings in being made by the world's greatest manufacturers of asbestos products.

NON-BURN ASBESTOS BRAKE LINING

LONG before the day of the motor car, Johns-Manville engineers had learned how to make dependable brake lining for giant industrial machinery. And so the tremendous and sudden demand for automobile brake lining found them years ahead of competition, both in command of the best raw material and in knowledge and experience in the process of manufacture.

The strong, tough fibres of Asbestos that are woven with wire into Non-Burn Brake Lining come from Johns-Manville's own mines and represent the highest grade of asbestos mined anywhere in the world.

• • •

To the Trade—Non-Burn is distributed strictly through jobber-dealer channels with liberal discounts, uniform and rigidly maintained. Details of this protective trade policy sent on request.

H. W. JOHNS-MANVILLE CO.
NEW YORK CITY
10 Factories—Branches in 55 Large Cities

JOHNS-MANVILLE SERVICE
COVERS THE CONTINENT

When you think of Asbestos you think of Johns-Manville

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WHY I PICKED THE WONDERFUL BRISCOE

Thos. F. Hopkins Jr. St Augustine, Fla.

"I chose the Briscoe because I honestly believe it presented the biggest value, dollar for dollar, that I could possibly offer.

"I had heard that the car was good, but when I learned first hand just how good the new Briscoe was, I was amazed. It puzzles me yet when I try to figure out how any factory can build so much value in a car for $725.00.

"To prove to myself and my constituents that the economy claimed for this Half Million Dollar Motor was a reality, I attempted to drive a new stock Briscoe from Jackson, Michigan, to St. Augustine, Florida, a distance of thirteen hundred miles. I started, in an attempt to make this drive on fifty gallons of gas. The route chosen is what is known as the eastern route, Dixie Highway via Cincinnati, Lexington, Knoxville, Chattanooga, Atlanta, Waycross, and Jacksonville. When I arrived at St. Augustine, I found that actual distance was 1298 and seven-tenths miles, and the total amount of gasoline used was 48½ gallons, an average of twenty-six and seven-tenths miles per gallon. Lubricating oil used was exceptionally small, only three quarts. I call that *some* economy. The entire trip was made in six days and a half, and from start to finish not a single bolt or nut needed tightening or adjusting. The hood was never raised except to put oil into the motor. All four tires had the original Michigan air in them at the end of the trip. I call that *some* car. Do you wonder that I can sell Briscoes easily? Honestly, we are making money faster than we ever hoped to do."

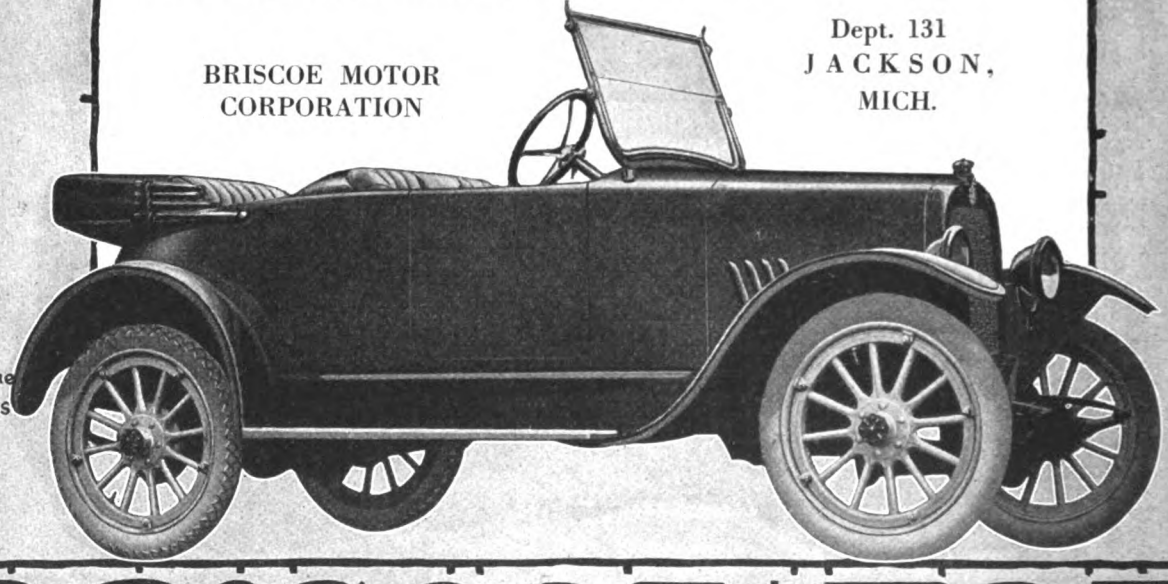
(Signed) THOS. F. HOPKINS.

MAKING MONEY FASTER THAN WE EVER HOPED TO

That's proof of the profit possibilities the new Briscoe offers. If your territory is open you should get our liberal new offer. It means plenty of profits for the dealer who gets it, just as Mr. Hopkins reports. Address

BRISCOE MOTOR CORPORATION

Dept. 131
JACKSON,
MICH.



Comes in the Body Styles Most in Demand

BRISCOE $725

THE CAR WITH THE HALF-MILLION DOLLAR MOTOR

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MARMON 34

Advanced Engineering

Why Marmon Dealers are Successful Men

MARMON success is growing in volume and intensity each season because it arises from sound engineering advances.

Its future does not depend on bizarre selling schemes, nor on the chance of catching popular fancy with new fads in styles or equipment.

The Marmon 34 is practically the same today as when it introduced scientific car construction at the New York Show in 1916—136-inch wheelbase—1100 pounds lighter.

There is a distinct tendency throughout the motor car industry to adopt Marmon principles of construction. Some must cling to old forms through commercial necessity—but it seems inevitable that Marmon advances eventually must be the rule.

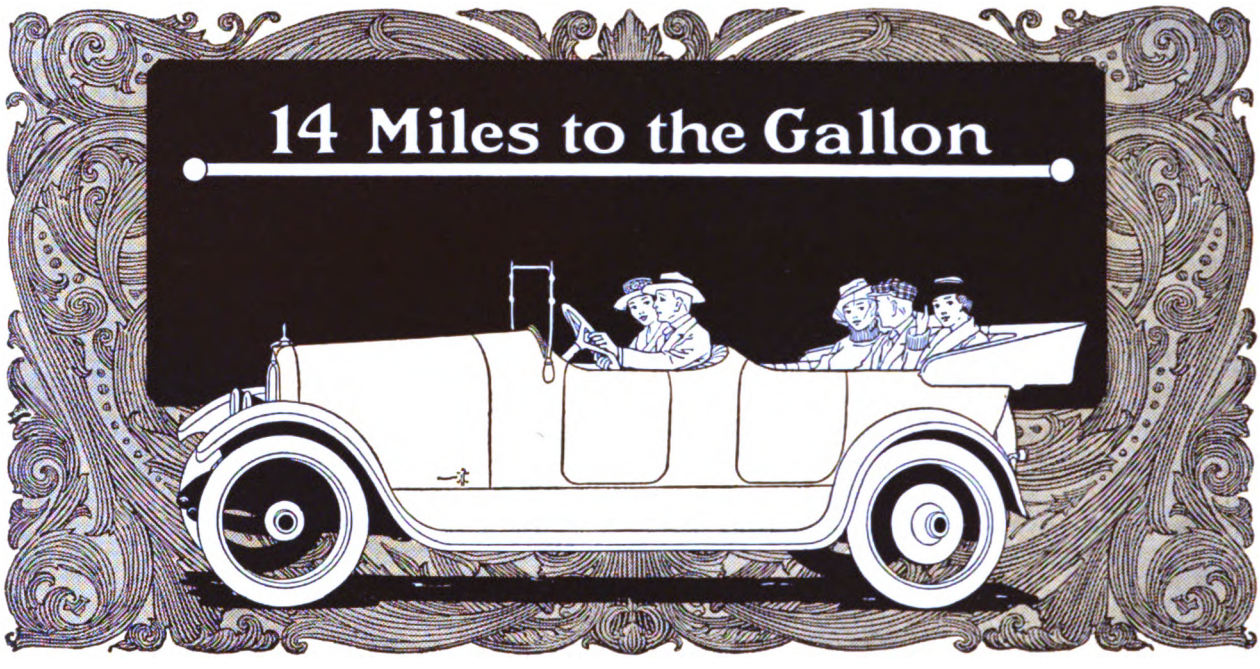
In the Marmon a dealer has vital advantages to offer that the growing numbers of buyers insist on having. It appears that soon there will be only a few fine car buyers who will be content with less than the Marmon provides.

The Marmon success is shared by Marmon dealers. Read on the following page a few of the reasons.

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MARMON 34

Advanced Engineering



Privileges of Marmon Economy

NOT only does the Marmon get all the driving force out of every drop of gasoline, but it wastes no power in pulling excess weight.

This car is a half-ton lighter than others of its size and power. So it travels long stretches without refilling, and saves from 50 to 75 percent in the cost of fuel. It saves in tires from 40 to 50 percent.

Marmon owners report that they average from 12 to 14 miles to the gallon. Yet the Marmon is a powerful car with a wheelbase 136 inches long.

This car's economy in operation means far more to the men who buy it than a saving in dollars and cents. It widens their range of travel and relieves them from much annoyance.

If heavy cars were better, Marmon would not displace them, as it does and is doing every month.

One ride in this scientifically constructed car — only an hour over country roads — will reveal the result of advanced engineering introduced by Marmon design.

NORDYKE & MARMON COMPANY

Established 1851 : INDIANAPOLIS

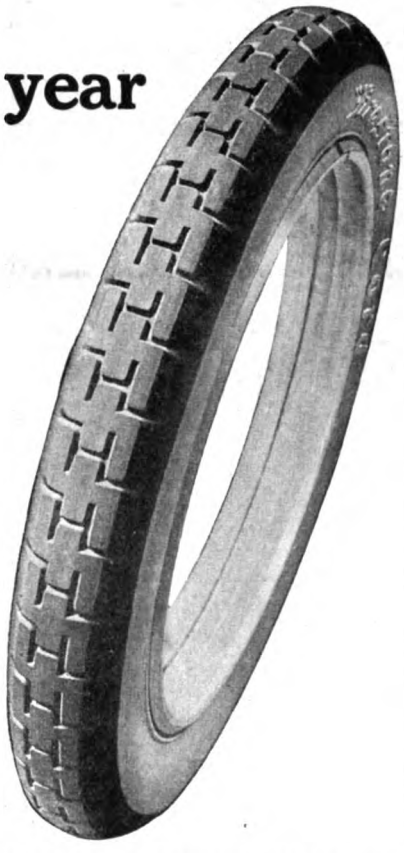
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A stride to the top in one year

This is the record of

Firestone

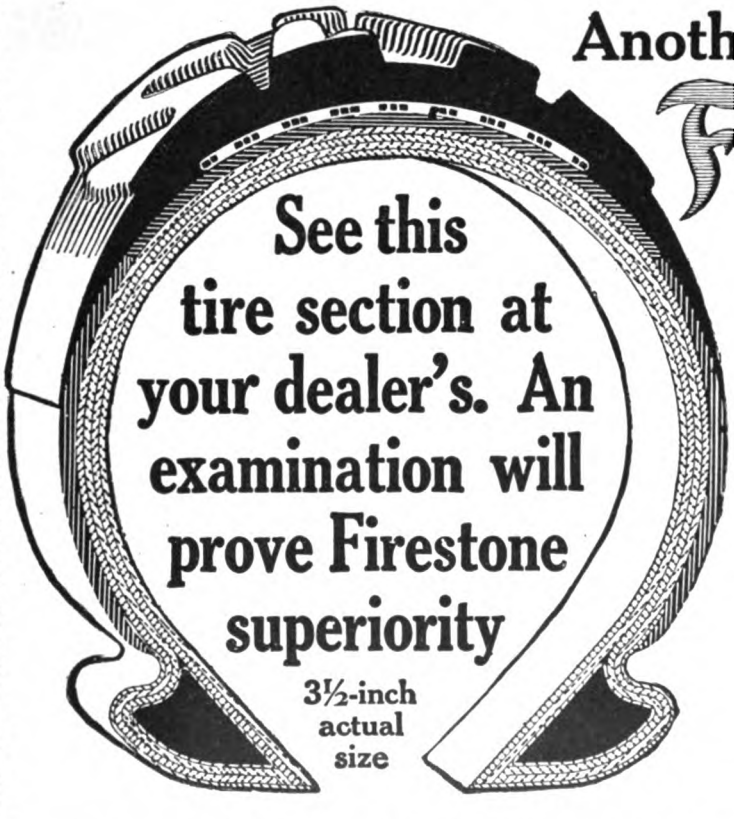
SUPER CORD TIRES



TALK to the users of Firestone Super Cord Tires wherever you see them. They have a message worth many dollars to you. Lower cost per mile in tires and gasoline counts big these days, so here, there, everywhere Firestone Super Cords have become the goal of motorists.

These are Firestone Super Cord features that produce extraordinary performance. Numerous walls of stout cords. Pure gum separates cords and prevents friction. Extra thick cushion layer of pure gum under tread absorbs shocks and protects inner body of tire. Tough, thick, resilient tread.

Bead, which holds tire in rim, strongly reinforced, as is also the side wall. Hinge or bending point of tire thrown high where strain has least effect. Result, Most Miles per Dollar.



Another step forward in

Firestone

FABRIC TIRES

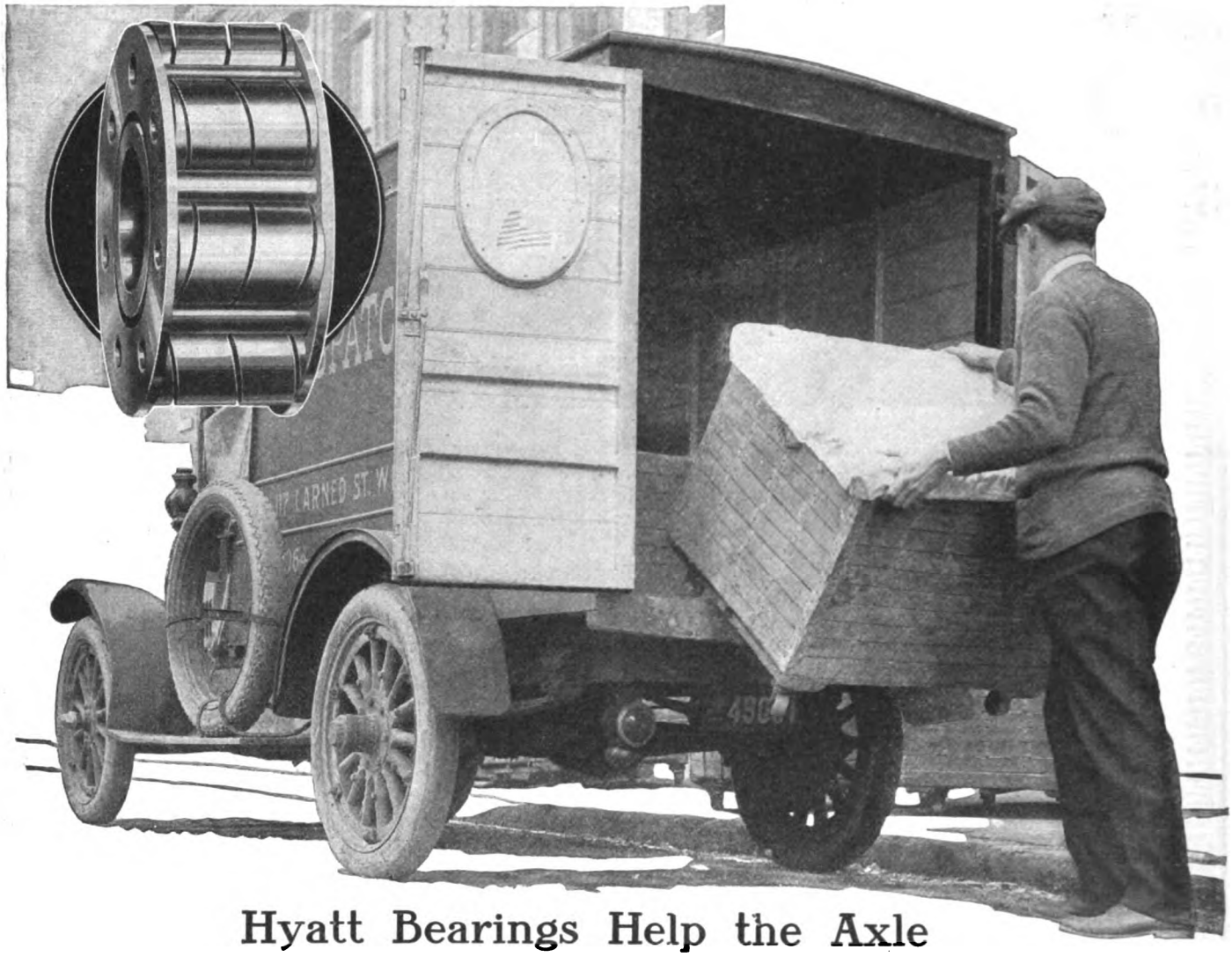
THE outstanding feature of all Firestone accomplishments is continuous advancement. Firestone never stands still. Here are the definite improvements: Tougher Tread; More Cushion Stock; More Rubber Between Layers; Reinforcement in Side Wall.

See cross section of tire at your dealer's. A brief explanation will convince you that Firestone on Fabric as well as Cord Tires means Most Miles per Dollar.

That motorists find extra values in Firestone Tires is proved by the fact that our sales increased 72 per cent this year up to September 1st. Our total business this year will exceed $60,000,000.

FIRESTONE TIRE AND RUBBER CO.
Akron, Ohio Branches and Dealers Everywhere

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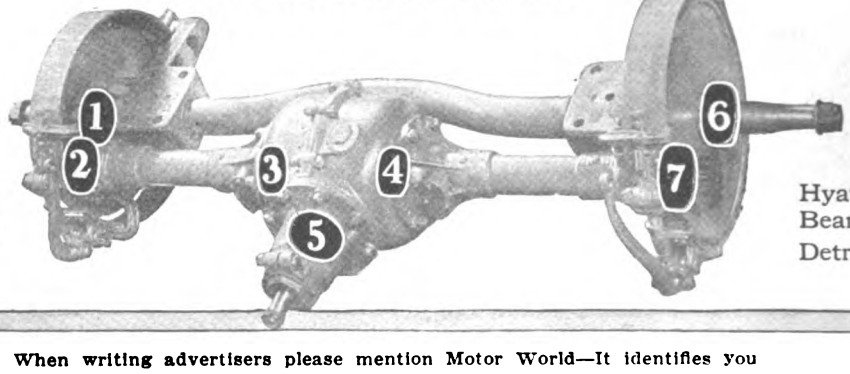
Hyatt Bearings Help the Axle
Give Constant, Care-free Service

Motor truck axles require bearings that are sturdy enough to stand the wear of constant service—bearings that are free from the need of time-wasting attention.

This is why Hyatt Roller Bearings are especially suited for standard units at hub and differential. Long use has proved their merit at these points of racking wear.

Successful axle builders know the value of bearings that are self-lubricating, self-cleaning and capable of long-time service without ever requiring adjustment.

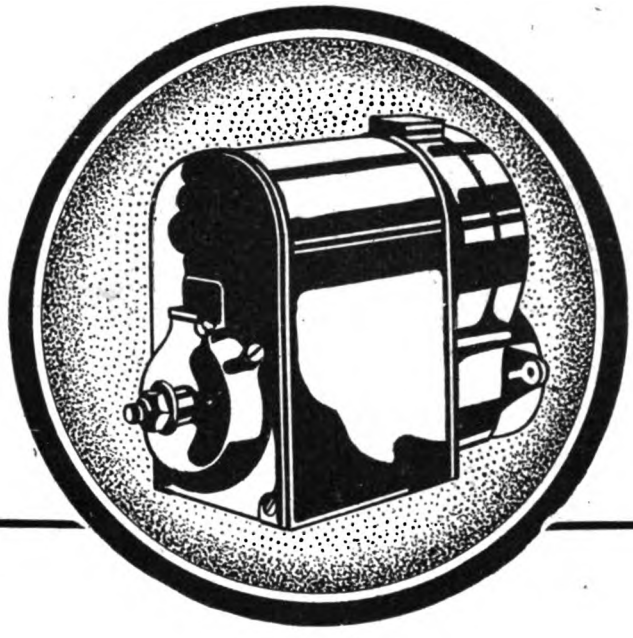
HYATT
ROLLER BEARINGS



This illustration shows the seven locations of Hyatt Bearings in the Celfor "Model 2" Axle

Hyatt Roller Bearing Company, Detroit, Michigan.

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"Magnetos are a Mystery to Me!"

"Electricity isn't in my line. With ***all*** the makers so strong in their claims how am I to judge which Magneto will give me the best service!"

That is the attitude of many car owners toward the magneto question.

Claims are poor things to judge by; ***results*** are what count, especially results in competitive tests. And since you cannot easily make the tests for yourself, follow the decision of those car, truck and tractor builders who are most particular to use the best.

Truck service, with its heavy, constant strains and shocks, is where the difference between magnetos shows most plainly. In the list of 81 truck builders who use Eisemann as standard equipment appear the names which mean most.

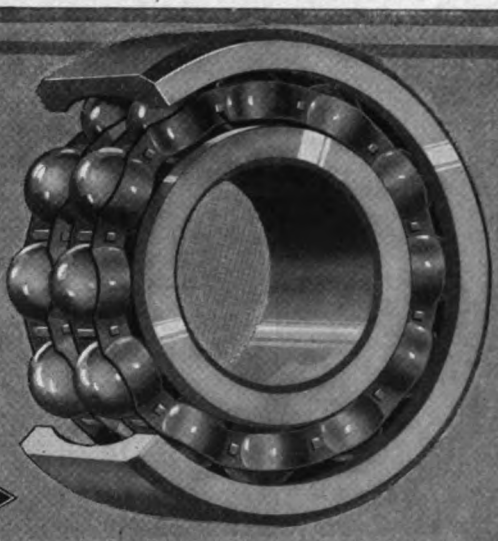
THE EISEMANN MAGNETO CO.

Sales and General Offices: 32-33d St., Brooklyn, N. Y.

Chicago, Ill., 910 South Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

EISEMANN
MAGNETO

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SRB

MAXIMUM SILENT ANNULAR BALL BEARINGS

By using the maximum number of balls in these bearings the load on each ball is greatly reduced, thereby adding appreciably to the efficiency and long life of the bearing.

S R B Bearings are designed to meet every requirement, large or small. Let our Engineering Department help you select the type that will give you the greatest service.

Comparative tables showing the most commonly used sizes will be sent on request

STANDARD ROLLER BEARING CO.
PHILADELPHIA, PA., U. S. A.

BRANCHES:
DETROIT, 936 Woodward Ave. CHICAGO, 2206 Michigan Ave.
INDIANAPOLIS, 822 Hume Mansur Bldg. BOSTON, 165 Massachusetts Ave.

Makers of S R B Annular Ball Bearings, Ball Thrust Bearings, Taper Roller Bearings, Steel Balls and *Rudge-Whitworth* Wire Wheels.

Head Sales Office for MAYO Radiators Made by Martin-Rockwell Corporation Mayo Radiator Division New Haven, Conn.



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Champion Toledo

Dependable Spark Plugs

Why Jobbers Are a Unit Behind Champions

They sell!

That ultimate appreciation of quality, which is the consumer's final verdict, has determined which spark plug is the known standard of quality and value.

Accorded full recognition by practically every engineering staff free to make unprejudiced decision, Champion Spark Plugs are standard factory equipment on an overwhelming majority of automobiles.

The public—less expert but no less appreciative of proven quality — has definitely endorsed the verdict of the engineers.

Champion Spark Plugs today, with both expert and lay endorsement, stand unchallenged—the supreme standard.

Jobbers profit most from the sale of those articles that encounter the least trade and consumer resistance.

The enormous natural sale of Champion-Toledo Spark Plugs means rapid turnover, maximum sales with the minimum of sales effort—assured maximum profit.

Jobbers are therefore a unit behind Champion-Toledo Dependable Spark Plugs.

Note the space accorded them in practically every jobber's catalogue.

Champion Spark Plug Company, Toledo, Ohio

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Champion Toledo

Dependable Spark Plugs

Why Dealers Everywhere Display and Push Champions

From coast to coast, in every nook and corner of the country, accessory dealers and garage men display and push Champion-Toledo Dependable Spark Plugs.

To the majority of car owners the spark plug is the Champion-Toledo—and the Champion-Toledo is the spark plug.

Dealers, conscious of this public attitude, naturally seek to advertise their preparedness.

The Dealer's profit, like the Jobber's, is in those articles which the public demands or accepts without question as standard.

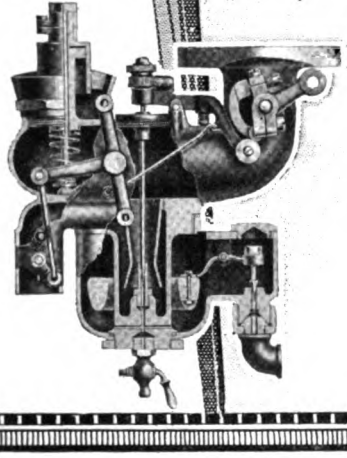
He displays and pushes Champions because he gets greater return in profits from the space and effort he devotes to them—his Champion-Toledo stock shows the quickest turnover with the least effort.

His experience has taught him that he only brings suspicion upon himself when he tries to persuade the customer against his conviction—that he must waste his profit in time spent in argument to sell other spark plugs against accepted standard of quality and value—Champion-Toledo Dependable Spark Plugs.

Champion Spark Plug Company, Toledo, Ohio

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quickly pays for itself



SMITH, DAY & CO.
CHAIR MANUFACTURERS
ESTABLISHED 1870

Indianapolis, Ind., May 31, 1917

The VanBriggle Motor Device Co.
Capitol Avenue
Indianapolis, Ind.

Gentlemen:-

The carburetor purchased of you some time ago for the Oakland "Eight" has been operating very satisfactorily. Perhaps the most valuable feature has been its economy of operation, after keeping an accurate record before and after making the change, the mileage per gallon has increased nearly 40%. With the present price of gasoline this is an item that cannot well be overlooked, and the device will easily pay for itself in a short time in saving of fuel.

Wishing you continued success in the manufacture of the VanBriggle carburetor, we are,

Yours very truly,

Smith, Day & Co.
Per Chas Day

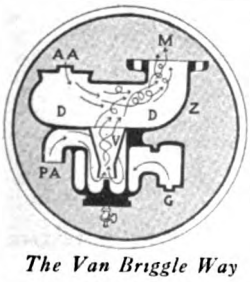
for Pleasure Cars, Trucks, Tractors

VAN BRIGGLE CARBURETOR

One Principle for all Motors

Economy is the vital thing nowadays—and that explains the success of the Van Briggle Carburetor. Saves gas—increases power—gives greater mileage. *All* Van Briggle users *know* this to be true, and *say* so, like Mr. Day, in his letter above. Illustrated descriptive booklet free on request. *Send for it.* ¶ JOBBERS AND DEALERS: The Van Briggle is as easily handled as tires. Small stock meets any need. New opportunity for profit and service. Write for proposition.

KEY TO DIAGRAMS: PRIMARY AIR (P.A.); AUXILIARY AIR (A.A.); GASOLINE (G); MANIFOLD (M.); MIXING CHAMBER (D.); VENTURI TUBE (V.); LOCATION OF MANIFOLD ON HORIZONTAL TYPE (Z.).

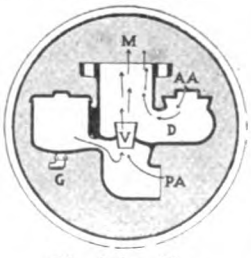


The Van Briggle Way

EXPLANATION OF DIAGRAMS

Because of the peculiar construction of the Van Briggle's primary air chambers, the primary air enters the venturi tube in a whirling, swirling movement, breaking even the poorest gasoline into the most minute particles. The primary mixture then enters the mixing chamber. The auxiliary air, traveling across to the manifold MUST PASS THROUGH THE PRIMARY MIXTURE. Two mixtures are thus assured in the Van Briggle Carburetor—each thorough and absolute. A thorough mixture and complete vaporization mean EVERYTHING to your motor. Compare the Van Briggle Way with The Other Way. There *is* a difference!

VAN BRIGGLE MOTOR DEVICE CO.
429 North Capitol Avenue, Indianapolis



The Other Way

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Why dealers prefer it

IT means two things to the dealer—this doubling and redoubling demand for the Conaphore on the part of the motoring public.

1. It means a chance to handle a line that *moves fast* and returns *easy profits.*

2. It means an opportunity to turn new patrons into regular customers.

The Conaphore sets the pace

In eight short months the Conaphore has established itself as the leading headlight glass on the market. More Conaphores are in use today than any other "patent lens" or similar device. And by actual figures the Conaphore has proved itself the fastest selling glass handled by the trade.

Of course there are reasons. In the first place, the product is right. It complies with every requirement of law and courtesy. It is endorsed both by motorists and legislatures.

Maximum range—all glare eliminated

Conaphores give headlights a range of 500 ft., yet do away with all glare. This is accomplished by the horizontal corrugations which direct the light onto the roadway, where it belongs. Cylinders in the center also fan out the light sidewise, so that the roadside is clearly distinguishable.

Shoots right through snow and fog

The Noviol Glass (*patented*) of which the Conaphore is made gives the beam that yellowish tint which pierces flurries of falling snow and low-hanging fog. This is a feature found exclusively in the Conaphore. It prevents dangerous "back-glare," and gives added security to winter driving at night.



THE CONAPHORE

Smooth front surface. Easily cleaned. Does not clog with snow or mud.

Well backed by advertising

Then, too, we have boosted Conaphore sales by strong advertising in the leading national and motoring publications. And we are keeping right on with our advertising through the fall and winter. The story of the Conaphore will reach millions monthly. We also furnish the trade sales helps—signs, printed matter, charts, etc.—so as to keep the Conaphore moving fast.

Winter business—cold weather made profitable

Dealers, get in touch with your jobber at once, and get in on some of the Conaphore business. Quick sales and liberal profits have already turned a neat sum for hundreds of dealers. (We figure total dealers' profits at more than $1,000,000.) Start now to get *your profits* on Conaphores.

Note: The Conaphore is also made of clear glass. The clear glass Conaphore complies with all no-glare laws and gives long range, but lacks the advantage of piercing snow and fog. We always recommend the Noviol and suggest that you do the same.

PRICE LIST

Noviol Glass	Per Pair	Clear Glass	Per Pair
5 to 6⅞ in. inc.	$2.40	5 to 6⅞ in. inc.	$1.00
7 to 8⅞ in. inc.	3.50	7 to 8⅞ in. inc.	2.50
8⅞ to 10 in. inc.	4.50	8⅞ to 10 in. inc.	3.00
10⅛ to 11¼ in. inc.	6.00	10⅛ to 11¼ in. inc.	4.00

Prices 25 cents more per pair West of Rocky Mountains. Sizes vary by steps of ⅛-inch above 6½-inch size.

CONAPHORE SALES DIVISION
EDWARD A. CASSIDY CO., Inc., Managers
Madison Avenue at 40th Street, New York

CORNING GLASS WORKS

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Gillette

A Tire That Is Practically Wear-proof

THE GILLETTE TIRE of to-day is without a rival. It contains the nearest approach to wear-proof rubber that the tire industry has ever produced. No other tire is made in the same way. No other rubber manufacturers can duplicate the "Chilled Rubber Process."

The Gillette "Chilled Rubber Process," developed and perfected by our Chemists, is a method of treating crude rubber. It toughens and "tempers" the rubber in a manner similar to the heat treating of the higher grades of steel. It does not *harden* the rubber in the sense of making it brittle. On the contrary, it actually adds to the resilience and tensile strength of tires and tubes.

These tires are practically wear-proof, and well nigh indestructible under ordinary usage. The Gillette Safety is outwearing all other fabric tires, and the Gillette Cord Tire is unquestionably the long distance champion.

Safety Tires

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P. Woodard, Presi-
it, formerly General
r. New Jersey Car-
ing & Rubber Co.



B. Gillette
e-President &
eral Manager



ward Hutchins,
sulting Engineer,
merly Consulting
gineer Federal
ber Co.



H. Smith,
merly Supt of Tire
nstruction Republic
bber Co.



ph Hutchins,
ief Engineer



ward Hutchins,
pt. of Mfll Room,
merly with
deral Rubber Co.



Lawhorn, Supt.
Tire Building,
merly with
deral Rubber Co.



G. Kauffman,
pt. of Tube Dept.,
merly with
public Rubber Co.

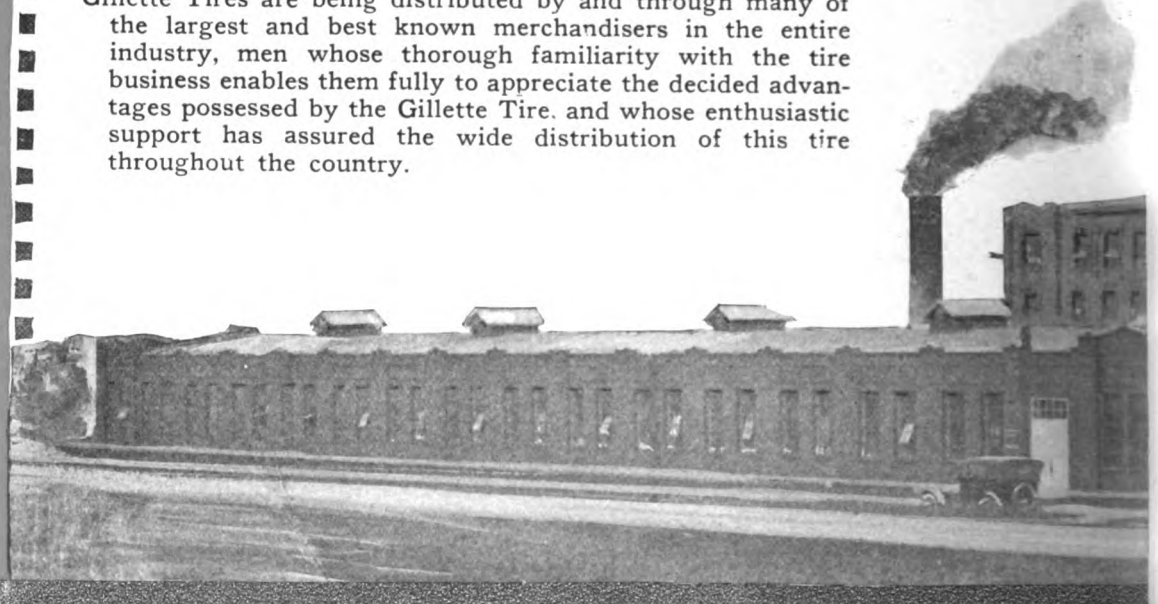
An Organization of Experts in Tire Manufacture and Distribution

The Gillette Rubber Company is composed of veterans in the industry—men who have personally assisted in and are thoroughly familiar with the growth and development of tire making.

Messrs. S. P. Woodard, President; R. B. Gillette, Vice-President, and S. H. Smith, General Superintendent, have been closely associated in the perfection of the "Chilled Rubber Process." Mr. Woodard was for some time General Manager of the New Jersey Car Spring & Rubber Co., and Mr. Smith was formerly Chemist of the Pennsylvania Rubber, Chief Chemist of the Goodyear Rubber Company and Superintendent of their Canadian Plant, and more recently Superintendent of Tire Construction for the Republic Rubber Co.

These gentlemen have associated with them a corps of tire-making experts, trained either by themselves or under circumstances that entirely justify their being classed with the best in the industry.

Gillette Tires are being distributed by and through many of the largest and best known merchandisers in the entire industry, men whose thorough familiarity with the tire business enables them fully to appreciate the decided advantages possessed by the Gillette Tire, and whose enthusiastic support has assured the wide distribution of this tire throughout the country.



Gillette

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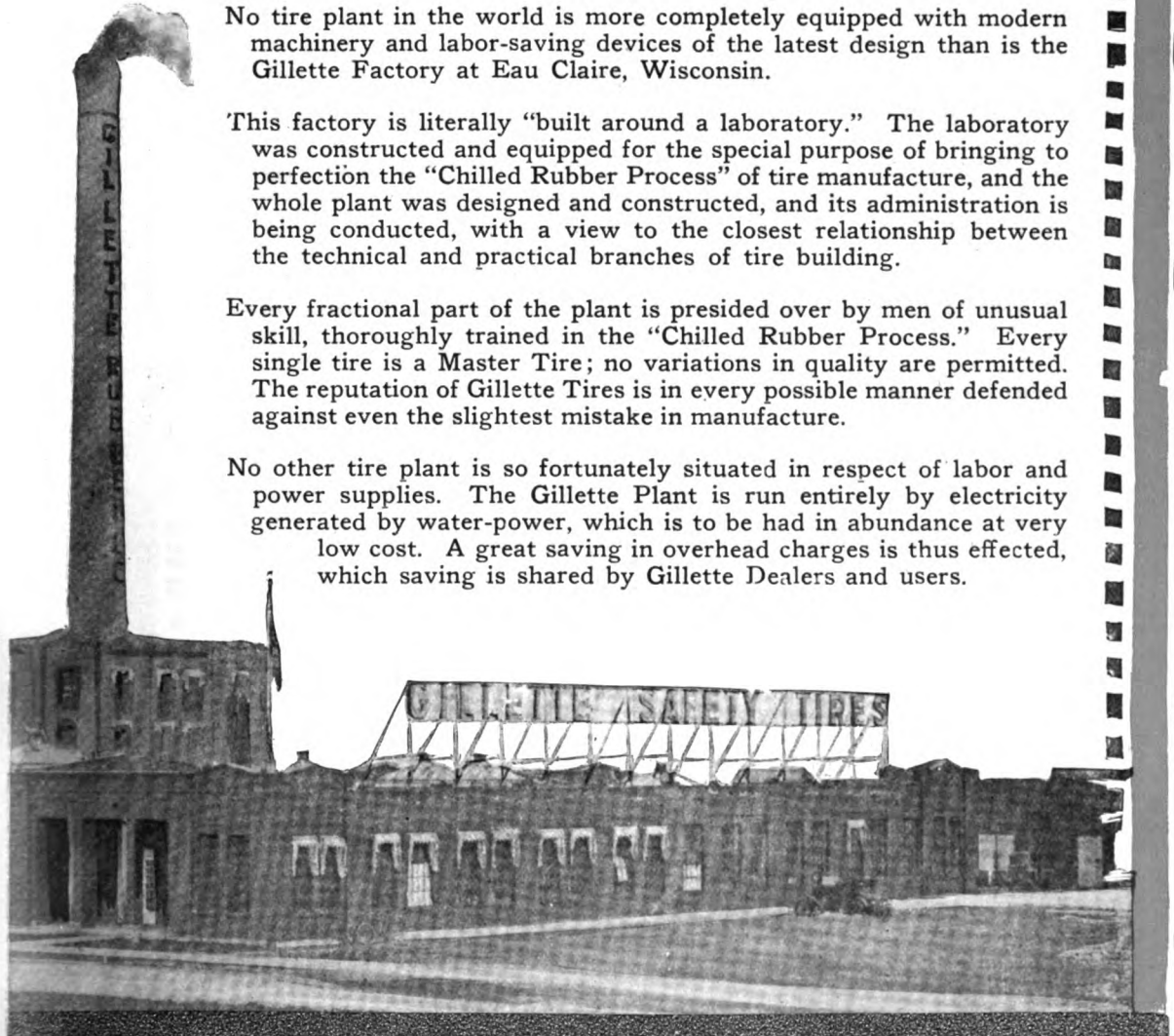
A Large Modern Plant, with Exceptionally Fine Equipment

No tire plant in the world is more completely equipped with modern machinery and labor-saving devices of the latest design than is the Gillette Factory at Eau Claire, Wisconsin.

This factory is literally "built around a laboratory." The laboratory was constructed and equipped for the special purpose of bringing to perfection the "Chilled Rubber Process" of tire manufacture, and the whole plant was designed and constructed, and its administration is being conducted, with a view to the closest relationship between the technical and practical branches of tire building.

Every fractional part of the plant is presided over by men of unusual skill, thoroughly trained in the "Chilled Rubber Process." Every single tire is a Master Tire; no variations in quality are permitted. The reputation of Gillette Tires is in every possible manner defended against even the slightest mistake in manufacture.

No other tire plant is so fortunately situated in respect of labor and power supplies. The Gillette Plant is run entirely by electricity generated by water-power, which is to be had in abundance at very low cost. A great saving in overhead charges is thus effected, which saving is shared by Gillette Dealers and users.



Safety Tires



G. H. Ruth, Director and large Western distributor, Pres. Marshall Oil Co. Marshalltown, Iowa.



N. J. Whalen, Director Pres. U. S. Gear Shif Co., Industrial Commissioner of Wisconsi



F. C. Herman, Director, Pres. Herman-Sanford Saddlery Co.



Harry L. Cook, Sales Manager



C. G. Race, Western District Mgr. formerly with N. J. Carspring & Rubber Co.



S. E. Bostwick, District Sales Mgr. for Northwest



C. H. Hopson, Purchasing Agent & Cost Accountant, formerly with N. J. Carspring & Rubber Co.



H. C. Olson, Auditor and Comptroller

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Gillette

A Co-operative Selling Plan that puts our whole organization behind every dealer

The Gillette Distributing Plan is, in its way, as remarkable as the Gillette Tire itself.

Every Gillette Dealer is practically a member of our organization. His business, the trade he builds, is of course his own—and will remain his no matter how big or prosperous it becomes. But his selling problems are ours. We are *all* interested in the correct solution of those problems—for the smallest as well as the largest of our Dealers.

The Gillette Contract is short, simple, easily understood. It confers upon the Dealer certain advantages which are plainly printed and thoroughly explained.

While the Gillette Dealer has for sale a Quality Tire, with an unbroken record of extraordinary performances, he has also the assurance of splendid profits, and an increasing business *that will always belong to him!* We will never establish branch offices to compete with him. He is our branch office. We are all growing together, parts of the same organization, equally valuable, one to another.

This extraordinary tire and unusual distributing plan has attracted a grade of Dealers such as we wish to have—ambitious, far-seeing men, who recognize this great opportunity and possess the ability to make the most of it.

THE GILLETTE RUBBER COMPANY

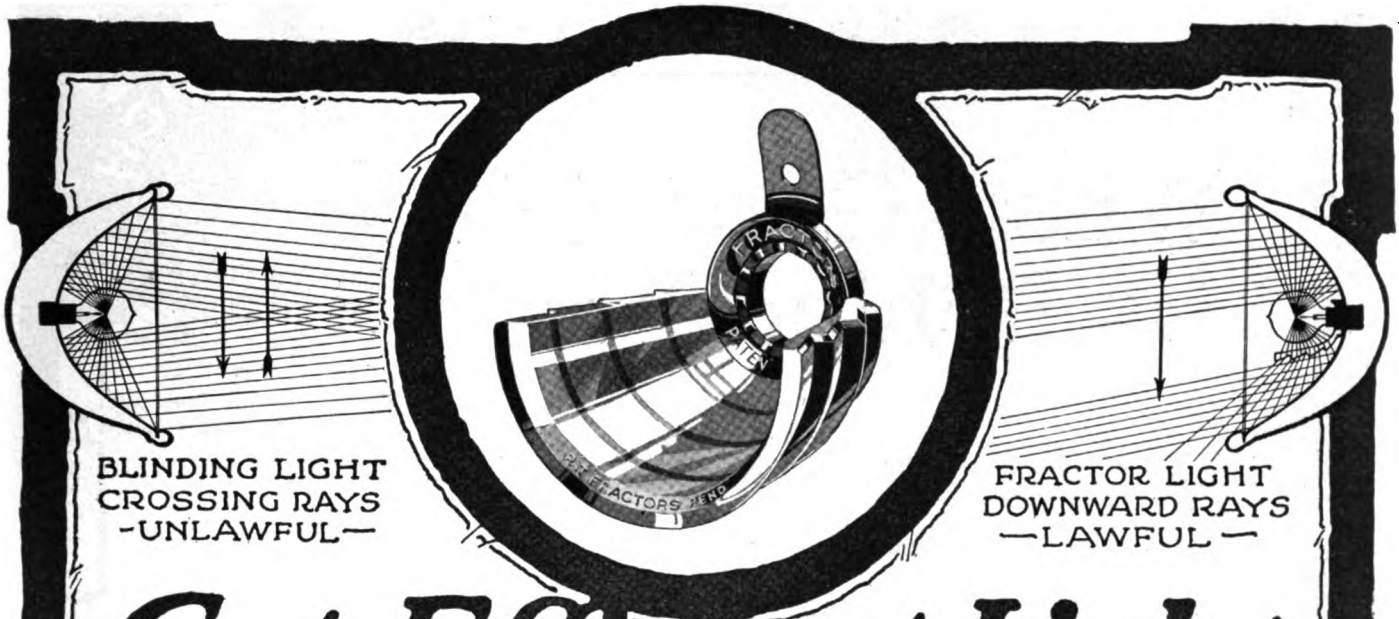
Chicago Office
122 Michigan Ave.

GENERAL SALES OFFICE
1834 Broadway, New York

Factories
Eau Claire, Wis.

Safety Tires

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Get Efficient Light and Keep Within the Law

AUTOMOBILE head-lights fitted with Fractors make night driving safe. They make the road ahead bright and clear—show up dangerous holes and ruts, warn you of the presence of carriages, persons, etc., far down the road.

While dimmed, diffused or screened lights may get you past the law, they do not light the road ahead.

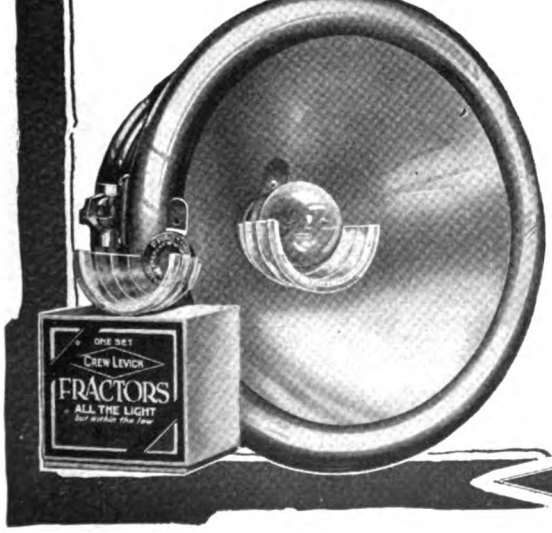
With Crew Levick Fractors you obey the law—also you see far down the road. The way is made safe.

Fractors definitely control the light before it leaves the lamp. They are

NOT LENSES OR FRONT GLASSES

but prismatic "cups" that bend light rays passing through them. Cross rays, which ordinarily blind, are bent forward by Fractors, and projected far ahead in a downward direction. No reflected light hits the eyes of approaching motorists, yet the road opens out before you in a wide path of daylight.

Dealers: Sell Factors—Owners get a better light and a legal light. You have a real chance to make money. No odd sizes—no dead stock. One size fits all lamps. Write for illustrated literature, prices and discounts to-day. Get in on this real headlight control.



FRACTORS

fit all head lamps from Fords to Packards. They are quickly and easily attached. They are unusually reasonable, $2.75 a pair —for any car. Fit Fractors to-day—get them from your dealer or direct.

Write for the Fractor booklet, and interesting summary of the "light control" problem.

Crew Levick Co., 105 N. Broad St., Phila., U.S.A.

One of the oldest and largest producers and refiners of oils, and manufacturers of petroleum products.

REFINERIES: Pennsylvania Paraffine Works, Bessemer Refining Co., Glade Oil Works, Seaboard Oil Works.
PRODUCING COMPANIES: Muir Oil Co., Pa.; Pembrick Oil Co., Pa.; Lawrence Oil Co., Pa.; Combination Oil Co., Pa.; Warren Co., Ill., Okla.
BRANCHES: New York, Chicago, San Francisco, Baltimore, Boston.
FOREIGN OFFICES: London, England.

REG. U.S. PAT. OFF.
CREW LEVICK

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FAIR LIST PRICES FAIR TREATMENT

When Goodrich is Behind You

GOODRICH TRADE MARK TIRES

Where You See This Sign Goodrich Tires are Stocked

WHEN *you are behind* a Goodrich dealer's sign, Goodrich is *behind you*.

Let us sum up just what it means to you, just what powerful selling forces you enlist by the simple act of placing a Goodrich sign above your door.

First, the great GOODRICH PRESTIGE, which means rubber and means automobile tires to the millions of Americans;

GOODRICH REPUTATION, which spells *quality* in tires, *good faith* of service and guarantee wherever rubber is known;

GOODRICH FAIR TREATMENT, which standing ready to fulfill to a customer anything a Goodrich tire may not, takes *all risk out* of the purchase of a Goodrich Tire.

THE GOODRICH NATIONAL TOURING BUREAU, which through the missionary work of its *route cards* and road maps and its guide posts pointing the way to the automobile tourists, *links* the touring public with the *sign* above your door;

And finally, the *far-reaching, gigantic advertising campaign* of 1917 with which Goodrich is sowing the nation with tire sales you can reap.

Have the great national magazines and weeklies, the metropolitan dailies, the newspapers of your home town, the billboards of your roadside *selling for you by*

HANGING A GOODRICH DEALER'S SIGN ABOVE YOUR DOOR.

GOODRICH

SILVERTOWN CORD TIRES SAFETY TREAD FABRIC

Goodrich Brown Tubes and Gray Tubes

The B. F. GOODRICH RUBBER CO. Akron, Ohio

BEST IN THE LONG RUN

Digitized by Google

Santa Claus Brings YOU



EXTRA PROFITS

SWING in on the biggest selling season of the whole year—boost your winter profits—grab the Christmas business on Marvel Jr. Vulcanizer that is all ready and waiting for you.

More Christmas giving will be done this year than ever before in the history of the motor car business. And nearly every dollar of it will be spent on a strictly utility basis.

Nothing will please any motor car owner more than the gift of a Marvel Jr. Vulcanizer. For every one you have sold in the past you can sell dozens right now.

Fill out the coupon here and mail it today. Get your supply of the big Xmas Selling helps we have all ready to send you. They are FREE—they will bring dollars and dollars of extra profits your way.

THE MARVEL ACCESSORIES MFG. CO.
CLEVELAND 7275 St. Clair Ave. OHIO

MAIL THIS COUPON NOW!
SEND US FULL INFORMATION ABOUT THE XMAS SELLING HELPS YOU SEND FREE TO MARVEL DEALERS.

Name .....

Address .....

MARVEL JR. VULCANIZER $1

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Immediate Deliveries

UNITED TRUCKS

2-Ton 3½-Ton 4-Ton 5-Ton

UNUSUAL power for the unusual load is proven in every United before it leaves the factory. Huge concrete blocks are loaded on the chassis and the truck must handle the load easily over hills, in sand, mud and on country roads. Each mechanical unit is the best engineering brains have designed and money can buy. Compare the United, point for point, with any truck made.

United Trucks have an international reputation for "standing-up." The famous United Power Plant is dependable in every emergency. The Worm Gear Drive insures utmost efficiency and economy. We can furnish any type of body equipment for efficient loading and unloading.



Dealers who want to handle a thoroughly good truck should write or wire their requirements. We can make immediate deliveries.

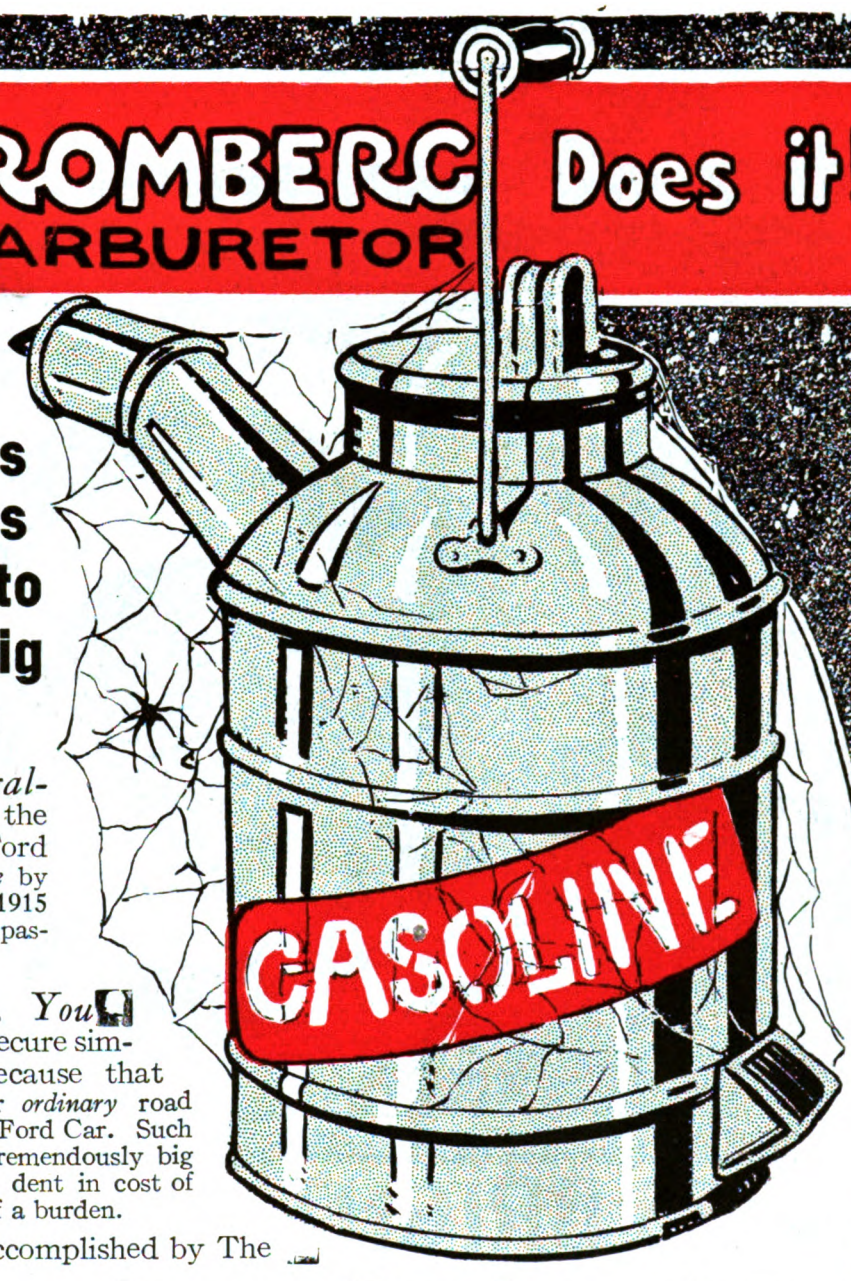
2-Ton	$2350
3½-Ton	3150
4-Ton	3450
5-Ton	4250

United Motors Company
671 North Street
Grand Rapids
Michigan

Write for CATALOG of the United Line

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New STROMBERG CARBURETOR Does it!



Gives Your Gas Can Less to Do—Saves Big on Fuel Bills

37 4/10 miles on a gallon of gasoline — that's the world's greatest official Ford economy record—and *was made* by a Stromberg-equipped Model T 1915 Ford Touring Car carrying three passengers and weighing 2170 lbs.

Those figures *don't lie. You* can rely on them. *You* can secure similar substantial savings—because that wonderful feat was made under *ordinary* road conditions—by an *ordinary* stock Ford Car. Such savings as those run up into tremendously big totals in a short time—put a big dent in cost of operation—make fuel bills less of a burden.

But that's not all that is accomplished by The

New Stromberg Carburetor FOR FORDS

It whips your engine along at a faster speed clip. It produces power that pulls your Ford through roads you now consider impassable. It abolishes cold weather cranking bothers—shoots your car away with a quick, clean start—no matter *where* the mercury stands. It gives the greatest range of flexibility—smoothest acceleration. Pays no attention to weather or road conditions—*requires* least attention—*fewest adjustments.*

10-Day Money-Back Trial

Order today. Enclose purchase price — $18. *Test* it for 10 days. No risk. Money back if you want it. Send now. Cut fuel costs. Roll up mileage. Save money. Stop waste and engine worry. Realize the *full* satisfaction of greatest power, speed and surety of utmost motor efficiency at all times. Descriptive matter *free* on request.

Stromberg Motor Devices Co.
Dept. 1128, 64 East 25th St.
CHICAGO

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HESS-BRIGHT BALL BEARINGS

THE intention of some manufacturers is to make purely a quality product—something "BETTER" than merely good. Something that demands recognition of its merit, because it embodies and typifies everything that is best.

Then, too, there are some things made merely to sell—things that can be easily sold because they can be purchased at a low price, although they may be good value for the price at which they are sold. The point we wish to bring forth is this:

Intention is the difference between things made to serve and things made to sell

THE HESS-BRIGHT MANUFACTURING CO.

PHILADELPHIA, PA.

Hess-Bright Distributors for Retail Trade in Every City of Importance

HESS-BRIGHT'S CONRAD PATENTS ARE THOROUGHLY ADJUDICATED

TRADE MARK HB DWF HESS-BRIGHT BALL BEARINGS

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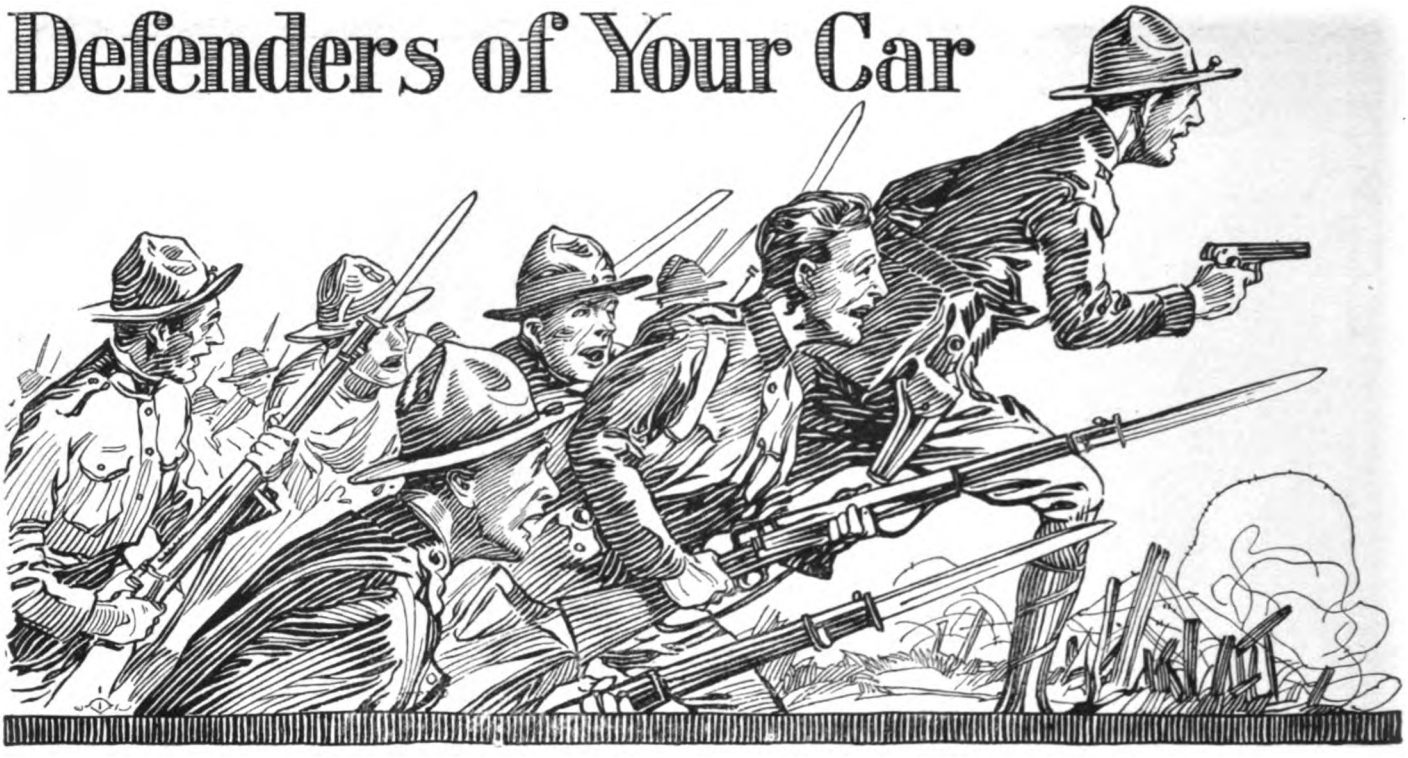
At your fingers' ends is a very willing and useful servant—your *GIBSON CATALOG*. Look it over! Let it fill your needs today. Full stocks, high quality, prompt shipments.

THE GIBSON COMPANY
Indianapolis
Motor Car Accessories and Tires
Shop Equipment and Electrical Supplies

"Gibson Serves the World"

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Defenders of Your Car



GLOBE TIRES

HAND MADE · GUARANTEED 6000 MILES

REDUCE THE OPERATING COST OF YOUR CAR

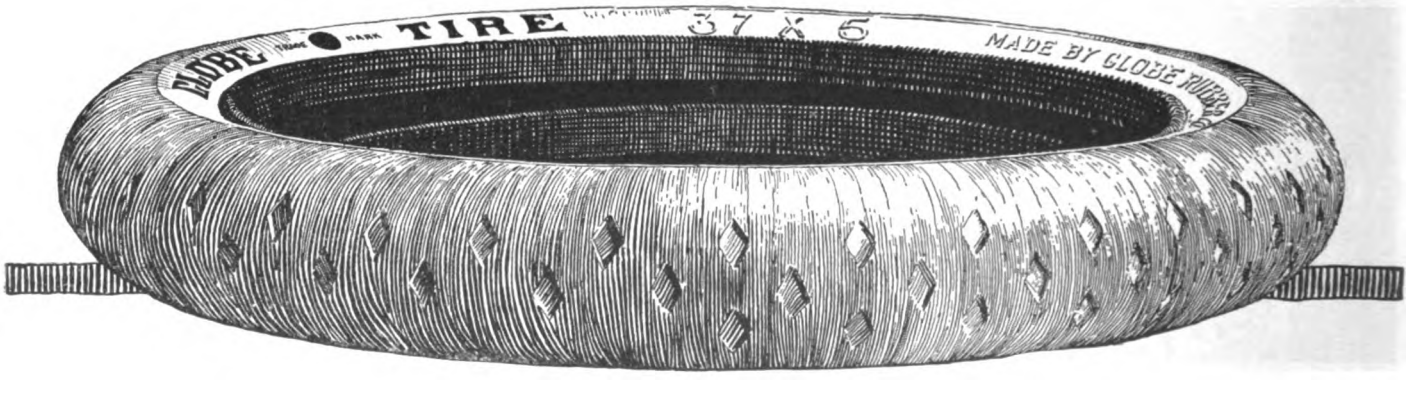
Tremendous mileage justifies the painstaking labor that goes into Globe Tires.

Here is a hand-made product that powerful hands cannot destroy. Cut through the carcass and breaker-strip — down to the pure, white plantation gum of the multiple-leaved spring-design tread. Now try to tear those tendons apart. Exert yourself. Use all your strength — but this great tread will hold.

Long Mileage Tires MUST Be Hand Made

Globe Rubber Tire Manufacturing Company

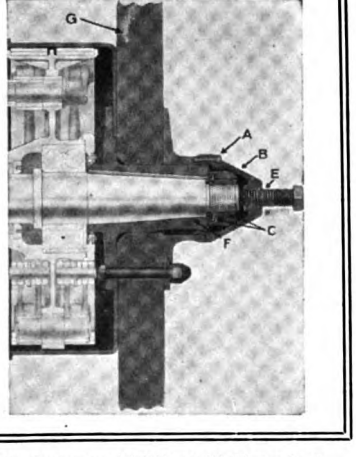
Executive Offices: 1851 Broadway, New York City
Factory: Trenton, New Jersey, U. S. A.



Responsible firms are invited to ask us about the liberal advertising we do at our expense in their home newspapers on behalf of hardware distributors handling Globe Tires on our special distributors' contracts. Exclusive, adequate territory will be given to those who qualify.

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Ready demountability of Sheldon wheel hub. Remove parts A, B and C, replace B (hub cap), insert E (set screw), and screw against shaft. Tap back of wheel G till it comes loose.

UNDER THE HUB-CAP

If it becomes necessary to take a wheel off a Sheldon Worm Gear Axle you will be surprised to find how easily and quickly it can be done.

Then look at the sturdy mechanism revealed. The tapered drive shaft which facilitates the removing of the wheel, the double internal expanding brakes with generous bearing surfaces, the enclosed bearings—away from dirt and grit—every part giving evidence of the high engineering skill and master workmanship which have made Sheldon Worm Gear Semi-floating Rear Axles the standard of truck axles.

Sheldon Worm Gear Axles are built to the triple ideal of strength, accessibility and service.

Write for detailed information.



Gauging bearing seats on front axle spindle. These surfaces are held to limits of 0.0005" for outer bearings and 0.0010" for inner bearing seat.

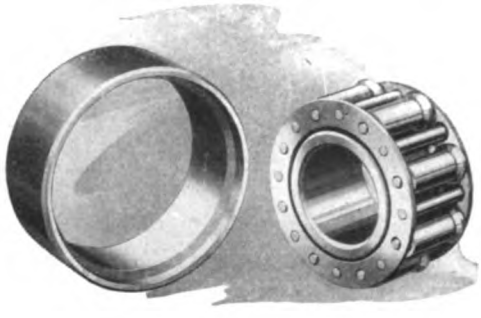
SHELDON

WORM GEAR AXLES

SHELDON AXLE AND SPRING CO., *Makers of springs and axles for heavy duty service for more than fifty years.* WILKES-BARRE, PA.

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BOWER SAVES POWER



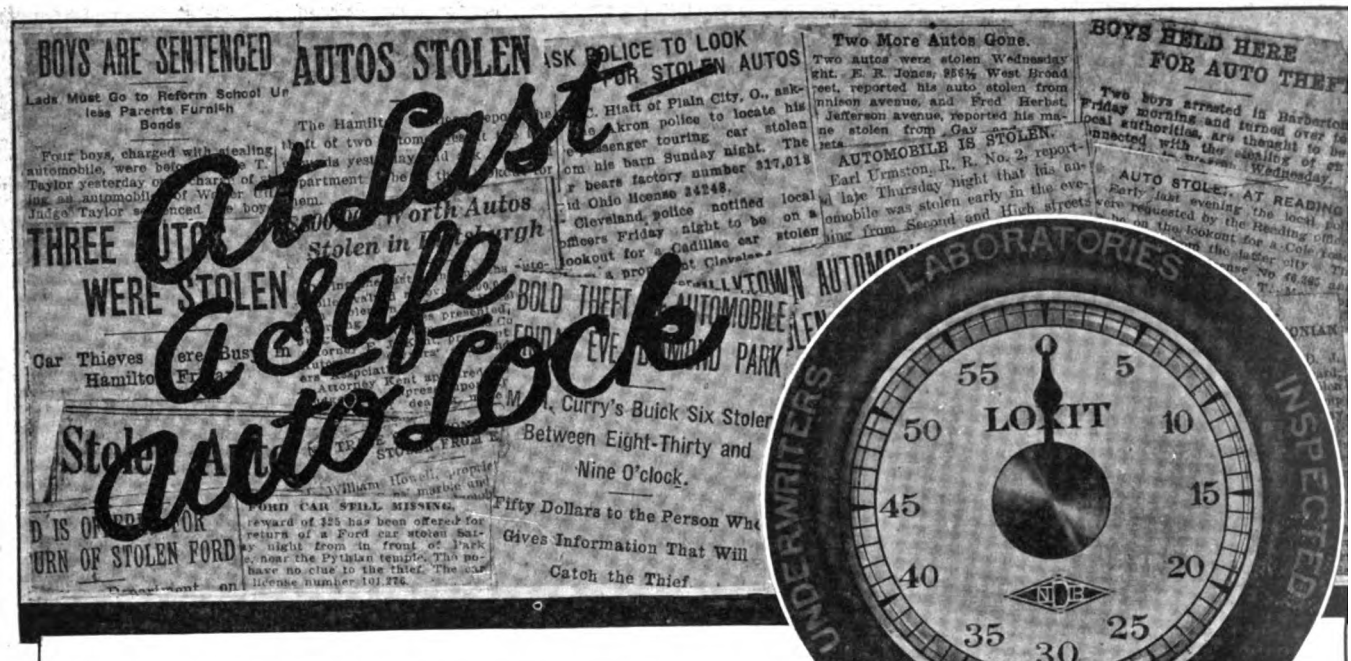
Unique!

The Bower Roller Bearing is the only bearing in the world which embodies this prime essential of efficiency:

The raceways for both vertical and end thrust are at all times parallel to the separate supporting surfaces.

BOWER
ROLLER BEARING CO.
Detroit Michigan

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LOXIT

COMBINATION HOOD and IGNITION LOCK

Retails at $12

Two Locks in One—Maximum Protection—Minimum Insurance

Do you know that last year over 130,000 automobiles were *stolen?* And this year the record will go even higher? That of the thousands of stolen cars, few are ever recovered in their original condition?

No wonder, then, that LOXIT finds such instant response on the part of the motorist—*and such unbounded enthusiasm on the part of the dealer.*

For Loxit fills a long-felt want and meets a universal demand. It is the *only* lock on the market today—the only profitable one for the dealer to handle.

Locks Hood and Ignition in One Operation

A feature of Loxit, one of its strongest selling points, is that it locks the hood and ignition at one operation. Works like a safe's combination—no lock to pick—no key to lose. No one can tamper with its mechanism—*not even another Loxit owner.*

A Great Opportunity—See Your Jobber

The price of Loxit is low, its service inestimable. It sells quickly and is easily installed. If you don't handle Loxit, you are not giving your customers the service you should, nor earning the profit you should as a dealer. *See your jobber at once.*

NATIONAL DISTRIBUTING BUREAU, INC.

Exclusive Distributors for the U. S. A. NDB **240 Oliver Building Pittsburgh, Pa.**

— — — — Jobbers, Dealers—Mail This Coupon — — — —

NATIONAL DISTRIBUTING BUREAU, INC.
240 Oliver Bldg., Pittsburgh, Pa.

Jobbers—If you want further particulars, check here .....☐

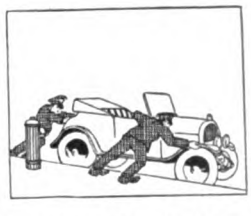
Dealers—If your jobber doesn't handle it, check here .....☐

Name.....

Address.....



A Dial on the Dash
is all you see of Loxit, and a lock on the hood. Both inconspicuous—yet unfailing safe-guards of the car.



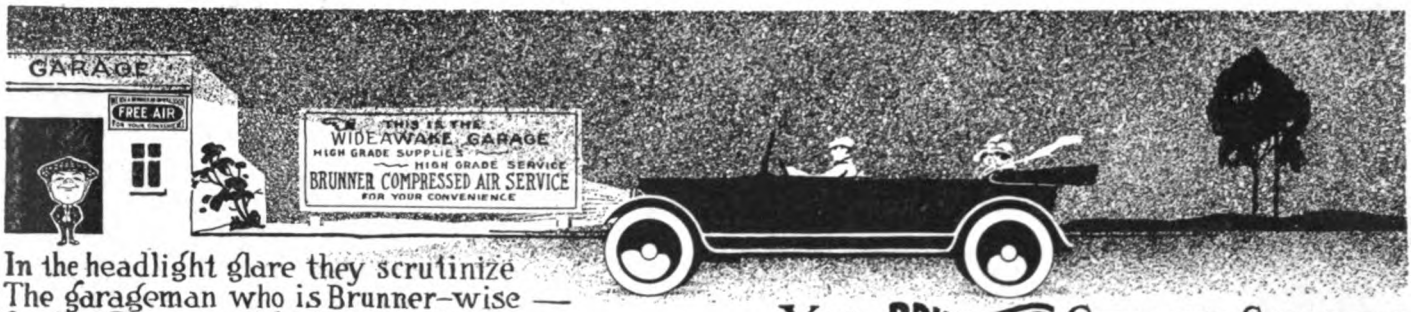
Leaves Wheels Free
Unlike other locks, Loxit does not lock the wheels, nor does it interefere in any way with any other part of the car.



Loxit's outstanding advantage is that it locks the hood. Riveted on each side is a shield rod, which slips into electric magnet locks attached to chassis frame, effectually sealing the hood.

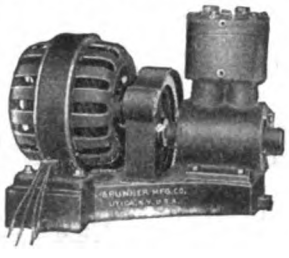
Loxit is manufactured by the American Auto Lock Co., Pittsburgh, Pa.

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In the headlight glare they scrutinize
The garageman who is Brunner-wise —
On the Brunner sign they rest their eyes
And stop for air and – some supplies.

YES, BRUNNER SERVICE SATISFIES



Mr. Garagemen, is your compressed air service a dependable efficient service such as the red-blooded motorist who drives his car all winter demands?

This is a pertinent question just now, Mr. Garageman, because the majority of these red-blooded winter motorists are Brunnerwise motorists who prefer Brunner Service, and a Brunner Air Compressor in your garage this winter would secure their trade.

INVESTIGATE THE BRUNNER AIR COMPRESSOR

If you do not find the Brunner Line in your jobbers' catalogue we will be glad to send you the name of the Brunner Jobber covering your territory and one of our complete catalogues and Handbooks on Compressed Air.





BRUNNER MANUFACTURING COMPANY

Main Office and Plant
UTICA, N. Y.

Cincinnati Branch
CINCINNATI, OHIO

THE chances are four to one that the cars you sell are equipped with New Departure Ball Bearings—*the* bearings for automobiles.

Don't overlook this fact in your selling talk and in your demonstrations.

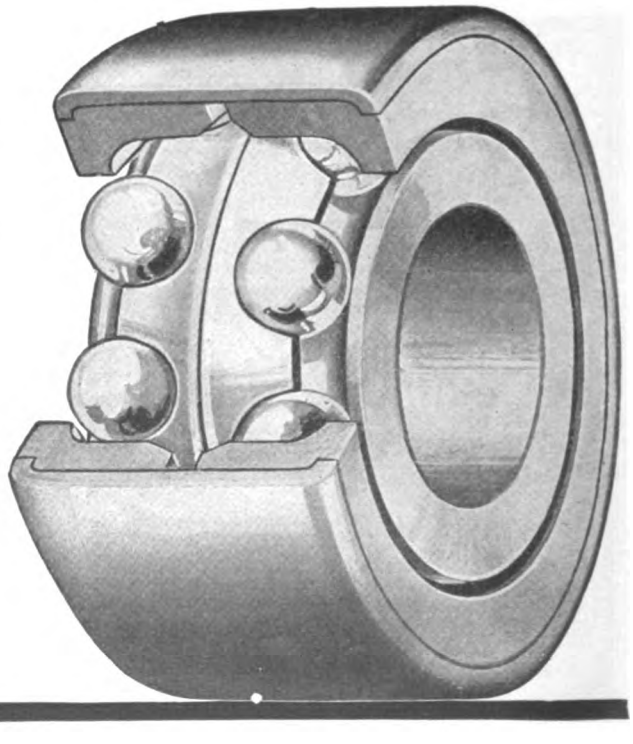
Buyers are becoming more and more "motor-wise" every day, and appreciate the advantage of good ball bearings in the car they drive.

The Brown Book gives interesting talking points for New Departures, that every salesman of a New Departure equipped car should know.

May we send you a copy?

The New Departure Manufacturing Co.
Bristol, Conn., U. S. A.

NEW DEPARTURE
BALL BEARINGS



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Reason

should influence your decision in the selection of your Spark Plug Stock—

There are many good reasons why

MASTER

CALORITE SPARK PLUGS

should be your selection—

Their design is in accord with the best automobile engineering demands and practices—

They are sturdily constructed of the finest materials obtainable.

They are tested under rigid inspection rules—

They are generously guaranteed thus—

> "We guarantee Master Calorite Spark Plugs against all defects of material or workmanship and will replace free of charge any Calorite Insulators broken by heat which are returned to us transportation prepaid."

And in their resale you derive a margin of profit which justifies your whole-hearted recommendation of these plugs to your customers for —long lived dependable spark plug service.

There is a Master Calorite Spark Plug for every variety of service—

And the retail price is amply justified by their efficiency and durability—

$1.00 and $1.25 retail
Depending upon the size.

Let us send you full details regarding our proposition to the trade. You will find it most attractive.



Master Calorite Spark Plug
Regular Length, $1.00 each

MASTER CALORITE SPARK PLUGS

Made in U. S. A. and guaranteed by

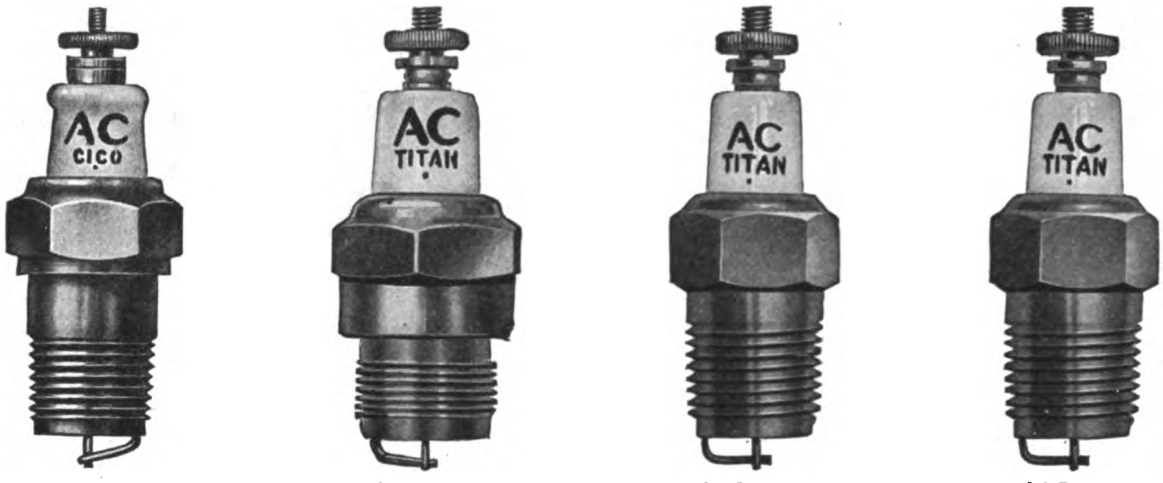
HARTFORD MACHINE SCREW COMPANY

530 Capitol Avenue, HARTFORD, CONN.

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AC Spark Plugs

The Standard Spark Plug of America

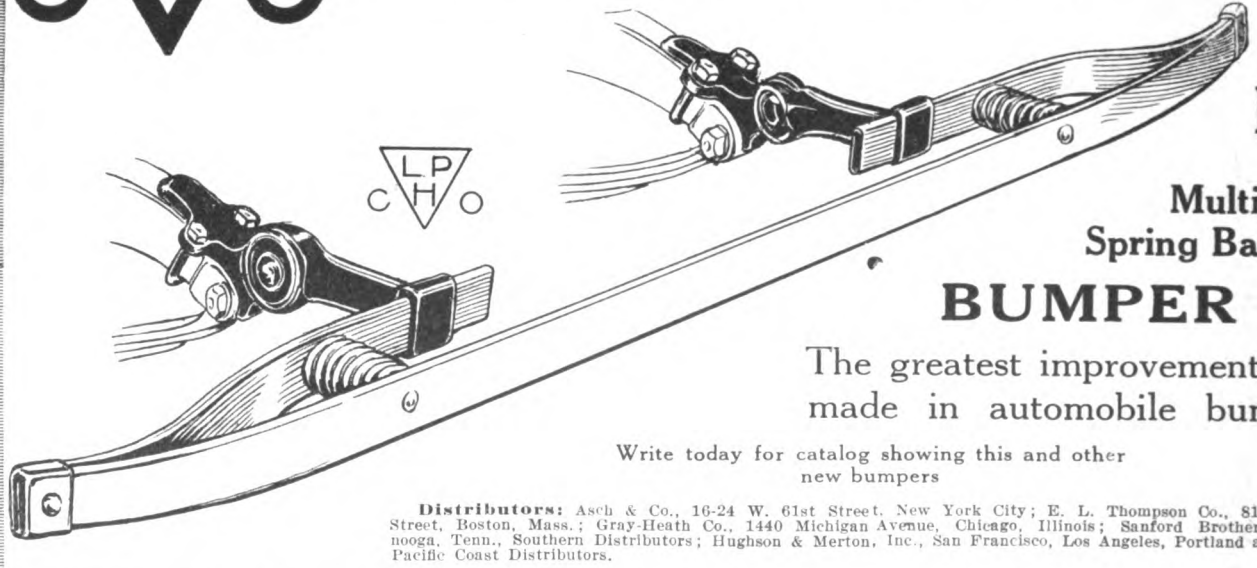


Special for Ford Cars A C CICO | ⅜" Regular For Maxwells A C TITAN | ½" Regular For Willys-Overland A C TITAN | ½" Regular For Studebakers A C TITAN

AC Plugs have proven to be the best under all conditions. That is why 87 manufacturers of Automobiles, Trucks, Tractors and Aeroplanes use them for regular equipment. The leading race drivers are using them. *Your* motor will not give its best performance unless equipped with AC. You will come to them in time. Why not buy a set *now* and note the improvement?

CHAMPION IGNITION COMPANY, Flint, Michigan, U. S. A.

LPH HALLADAY BUMPERS



The New Multiple Spring Bar BUMPER

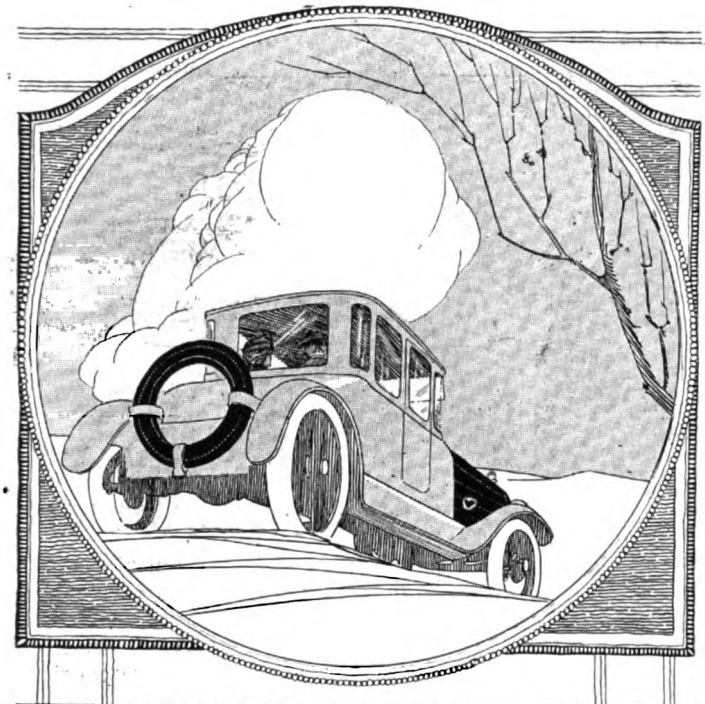
The greatest improvement ever made in automobile bumpers

Write today for catalog showing this and other new bumpers

Distributors: Asch & Co., 16-24 W. 61st Street, New York City; E. L. Thompson Co., 817 Boylston Street, Boston, Mass.; Gray-Heath Co., 1440 Michigan Avenue, Chicago, Illinois; Sanford Brothers, Chattanooga, Tenn., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.

L-P-HALLADAY Company.

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Changing a Tire

is an uncomfortable job under any conditions. It is doubly so when the spare is covered with snow and ice.

Invincible

Tire Covers

are waterproof, and weatherproof. When removed, the tire is clean, free from mud and ice, and in perfect condition. These covers are easy to put on, cost but little, and add many miles to the life of a tire. Every spare tire sold should be equipped with one of these tailored-to-fit covers. They can be secured from any jobber. Our catalogue and the name of the nearest jobber to you will be sent upon request.

The Peters & Herron Dash Co.
77 S. Gift St. **Columbus, Ohio**

Once in a while a Kelly-Springfield Tire fails to go 6,000 miles; but for every one that fails, two go double the distance.



Kelly-Springfield Tire Co.
Executive Offices
Seventh Ave. at 57th St., New York.
General Sales Department
1900 Euclid Ave., Cleveland, O.

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You Are Serving Your Customers' Best Interests When You Offer Them Dependable Tools

—and not only that but also you are safeguarding the reputation of your business.

Automobilists and tool users in general cannot manage for any great time with cheap, inefficient, makeshift tools. Their requirements are such that anything other than the strongest and most durable tools are quickly rendered useless.

For this reason it is a wise, far-sighted policy to offer your customers the universally known line of triangle trademarked drop-forged tools. With these there can be no mistake. You are absolutely safe and the reputation of your store is protected because every triangle trademarked tool is unconditionally guaranteed.

Write for new catalog—the 34th Edition.

THE BILLINGS & SPENCER CO. B
HARTFORD, CONN. U. S. A.



"I put My Car up for the Winter!"

"The Old, Old Story oft repeated: Unsatisfactory lubrication—Oil would not flow at Zero—Scored Cylinders."

"It's different now—I have found an oil which 'Flows Freely at Zero'—gives perfect lubrication and leaves less carbon."

"I run her all year 'round on

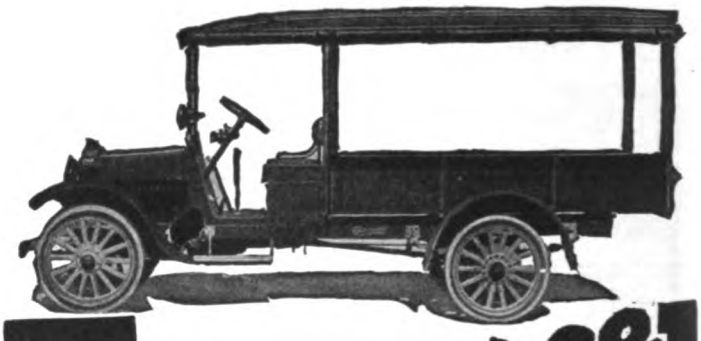
SUPREME AUTO OIL

Sold everywhere you see the Sign of the Orange Disc."

MANUFACTURED BY

GULF REFINING COMPANY

The Largest Independent Refining Company in the World



Commerce

1 Ton Trucks

A Year Ahead of Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

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READY TO USE



CHEAPER TO USE

KESTER CRYSTAL CORE SOLDER

for the repair of battery terminals, gasoline pipe and tanks joints, electric light connections, radiator leaks, cracked fenders, speedometer flexible shaft, spark plug terminals and general garage use.

NO WASTE 

NO DELAYS

The solder is a hollow wire filled with an acid flux which flows as the solder is used. There is no time lost in hunting, preparing or applying the flux, as it is contained within the solder and ready to use. Quicker, neater and cleaner results.

Sold in one pound coils and on one, five and ten pound spools. Free sample sent on request for trial purposes.

Order through Your Jobber.

CHICAGO SOLDER CO.

CHICAGO ILLINOIS

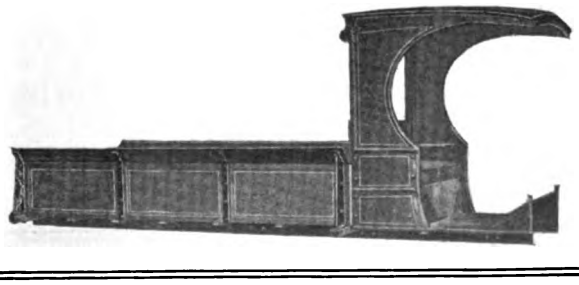
McKAY BODIES

HIGHEST quality commercial bodies. All types, all sizes. Mechanically perfect, beautifully finished. Vehisote paneling.

Our line includes a body suitable for every need—from Jitneys to Juggernauts.

Write for complete catalog.

McKay Carriage Co.
Grove City, Pa.





25¢ each CONSIDER THE TERMINAL

Why should a never-failing *source* of the vital spark be demanded—why be sure that plugs have the reliability to *deliver* that spark—

***IF* it is not made certain the spark is not hindered enroute—at the terminals?**

Vibration and jar won't loosen the connections, in fact, the contact gets firmer if that connection is made by a

HANDY TERMINAL

GRIPS LIKE A VISE

The jaws of the Handy are threaded on the inside. They engage the thread of the plug center bolt. Drawing up on the ring with the first and second fingers—see illustration—compresses the spring. The jaws spread—the plug is released. Reversing the action, clamps it. No tools required. No nuts to tighten or loosen—nor fish out of the drip pan.

The cable is made fast by a ferrule—an integral part of the terminal. The stripped wire is firmly held by a copper clip. It can't work loose.

The HANDY TERMINAL is a necessary convenience. The motorist needs one for each cylinder. It gets the maximum out of his ignition system. Three sizes to fit every make of plug.

DEALERS Here's an accessory that not only dominates the field—it has a field of its own. It's a winter seller that will be pushed by national advertising and pulled by moderate price and demand. Thousands have been—thousands will be—sold. Write us if your jobber isn't stocked. Our promptness depends on yours.

THE FRANCIS-RAND CO.

Manufacturers of

HANDY PRODUCTS

406 Erie Building, CLEVELAND, OHIO, U.S.A.

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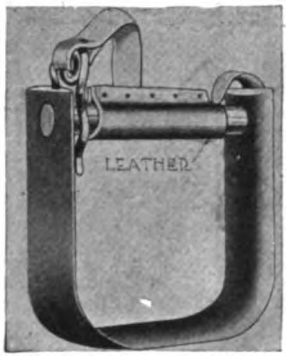
Trimmed with

MIDLAND

STOCK WHITE ENAMELED

TERRA COTTA





Every Truck With Solid Tires Needs EASYON Truck Grips

They take a firm hold on any road but cause no bumping on pavements.

WOODWORTH

EASY-ON SOLID TIRE GRIP

The Easyon Solid Tire Grip is made from half oval steel U-shaped to fit over the tire and rim. The rounded side comes next to the rubber presenting a perfectly smooth surface that does not cut or injure it.

It is held in place by a round leather covered bar that connects the end across the felly of the wheel between the spokes. On pavements the bar raises up from the felly but in mud or snow it comes against a spoke tilting the grip so that one edge digs into the soft road taking a strong hold.

Will save double their cost in tires besides causing no bumping to machinery.

Made in all sizes for single or dual tires.

Dealers and Jobbers should write for proposition.

Woodworth Mfg. Corporation
Niagara Falls, N. Y.

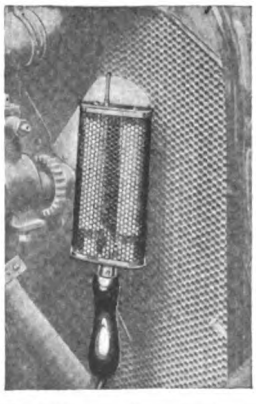
WINTER BUSINESS— Cold Weather Made Profitable

Presto Electric Heater



Keeps **Carburetor** and **Engine Warm**

Makes Starting Easy



"We have no way of telling exactly how much gasoline is wasted in coaxing balky engines to run in winter, but it is probably enough to supply the wants of our army trucks for a long time. *The greatest waste comes where a car is housed in an unheated garage and the owner has made no provisions for easy starting,"* says B. M. Ikert, in Motor Age.

PRESTO Under-the-Hood Electric Heater makes that provision. *It makes morning starting easy. It saves fuel. It keeps the radiator warm.* IT SELLS.

Dealers order from your Jobber.

Metal Specialties Mfg. Co., Inc.
338-352 N. Kedzie Ave., Chicago
Eastern Branch:
16-24 W. 61st Street, New York City
Western Branch: 149 New Montgomery St.
San Francisco, Cal.

HIGHLAND

The World's Standard Commercial Body for Over Twenty-five Years

Motor-truck manufacturers faced by the necessity for production with as little lost motion as possible will do well to avail themselves of the cooperation of our Engineering Department.

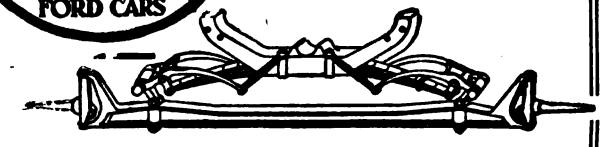
We build bodies for most of the leading truck-makers; and through our long experience are often able to save the truck-maker money while producing a more satisfactory body type for his chassis.

Highland Body Manufacturing Company
1121 Elmwood Place Cincinnati, Ohio

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The Original Double Arm SHOCK ABSORBER W&C For FORD CARS

$10 Per Set of 4



W & C

The Original Double-Arm Shock Absorber Makes As Much Difference As Pneumatic Tires on Fords

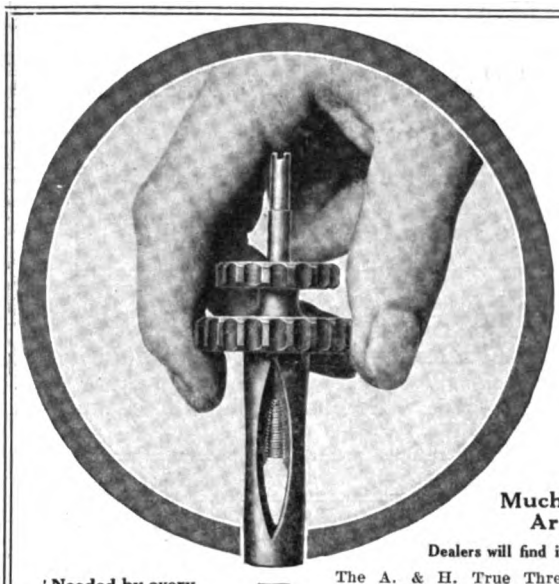
Installing a set of W & C double-Arm Shock Absorbers is as good as substituting pneumatics for a set of hard rubber tires. Their resiliency reacts to the immediate advantage of both passengers and mechanism.

They are as desirable on Ford cars as air-filled tires. You *know* how desirable *that* is.

Ask your dealer to-day—and say "W & C."

Some territory still open that needs live dealers. WRITE.

P. H. WEBBER COMPANY
HOOPESTON ILLINOIS



A Much Needed Ar ticle

Dealers will find it easy to sell

Needed by every motorist and within reach of all

$1.50



The A. & H. True Threader Valve Tool is a simple, compact, easily operated instrument with which the worn, irregular threads of the tire valve can be quickly recut.

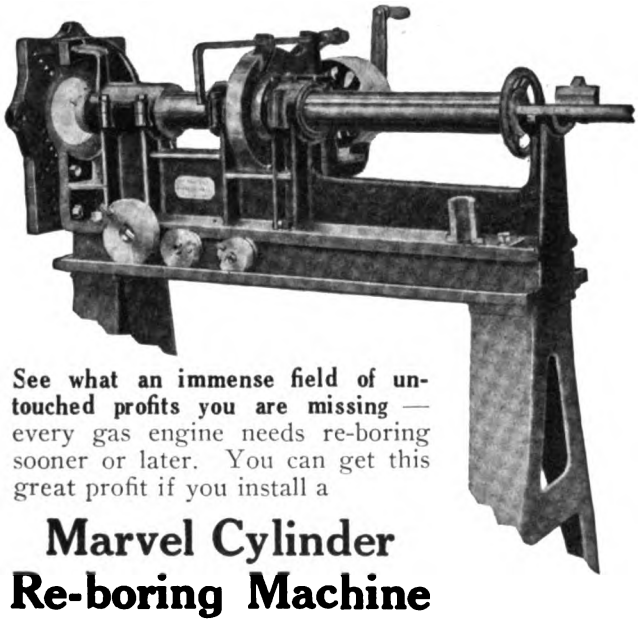
A & H True Threader Valve Tool

By simply pressing and rotating the two wheels cuts inside and outside threads of the cap stem and plunger at the same time. It is self aligning. Tire leaking at valve is stopped and tire failure due to under inflation prevented.

Endorsed by all the leading tire companies. Adopted by Miller, Firestone and U. S.

Write today for proposition and snappy literature.

A & H MANUFACTURING CO., Inc.
505-507 WEST 45th STREET :: NEW YORK CITY



See what an immense field of untouched profits you are missing — every gas engine needs re-boring sooner or later. You can get this great profit if you install a

Marvel Cylinder Re-boring Machine

The only device that will do the work and bring you the profit—no other like it for *speed, accuracy, simplicity* of *operation* and *general efficiency.*

Will re-bore any block, 2½" to 8" in diameter, perfectly round and without taper, accurate to less than .001 of an inch.

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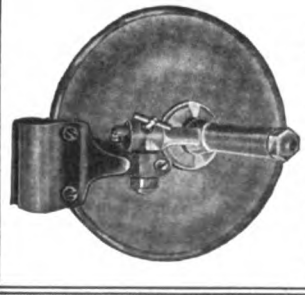
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LAW COMPLYING—The Williams locking bracket guards against infraction of laws regulating elevation ahead.



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$9.00 Baked enamel and nickel, in black or colors, convex lens, 6-inch reflector. With 7-inch reflector $10.00

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Controlling Perlman Demountable Rim Patents

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Light Delivery, 1, 2, 3½ and 5 Ton

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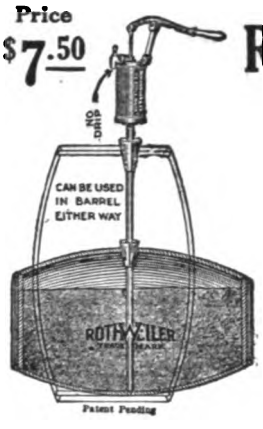
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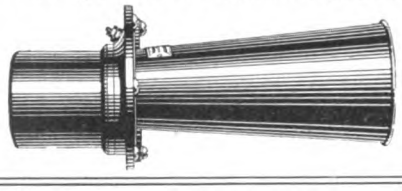
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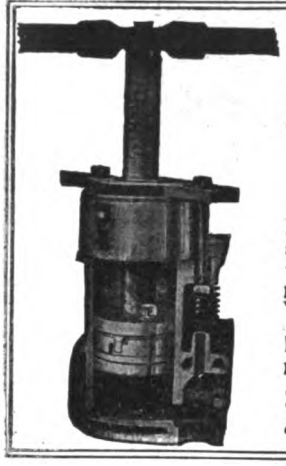
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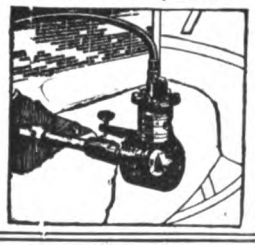
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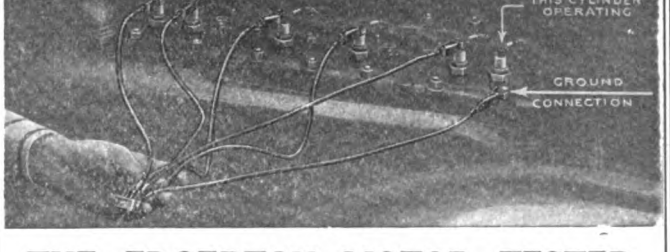
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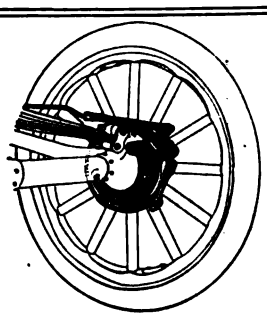
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$1245 1¼ Ton Chassis

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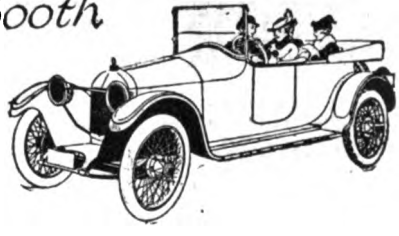
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Dandy profits for dealers.

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Ford cars are difficult to start in cold weather without



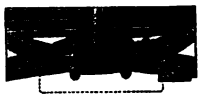
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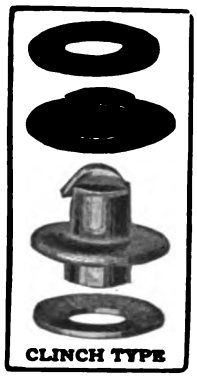
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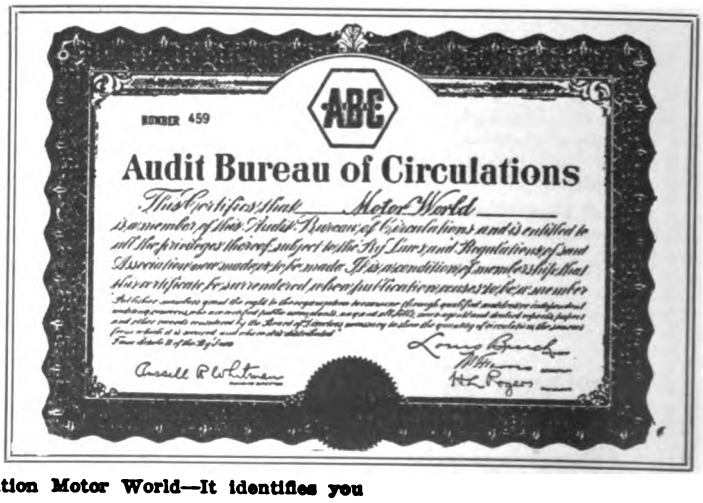
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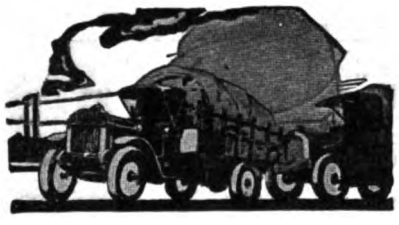
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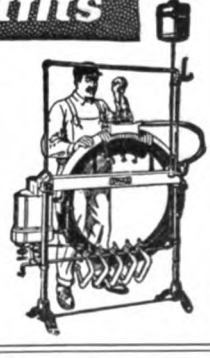
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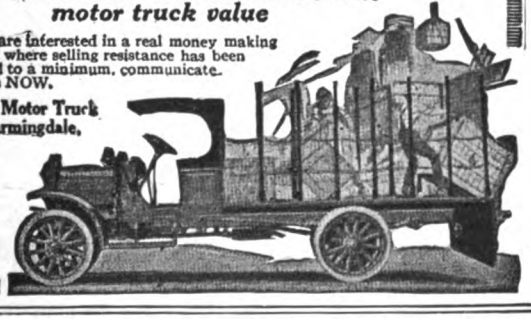
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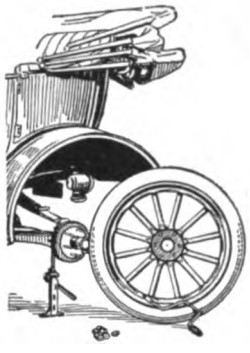
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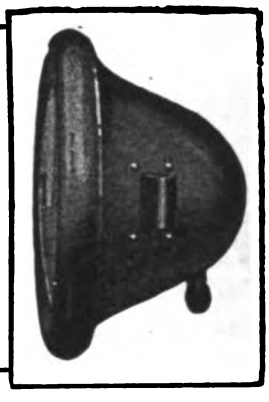


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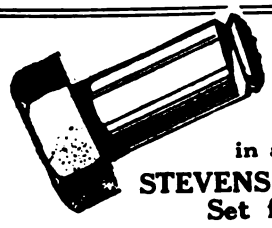
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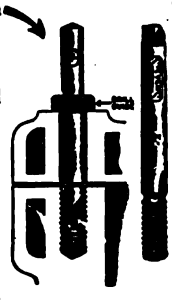
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The Other End Is Sheared Off Close in Your Cylinder Block

YOU CAN GET IT OUT
in a few Minutes with

STEVENS Tap and Drill Set for Fords
without removing the cylinder head

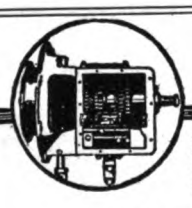


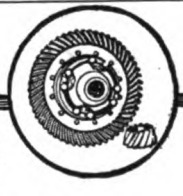
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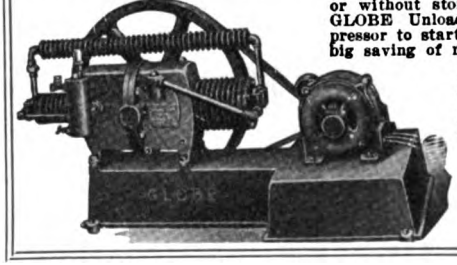


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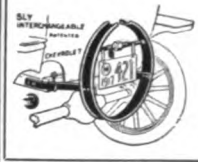
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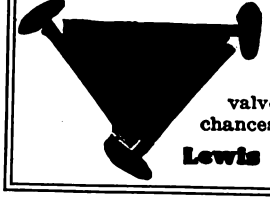
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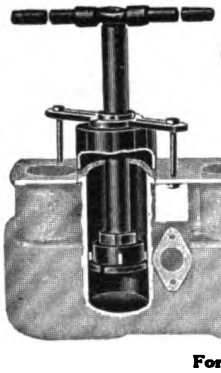
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Stock will be on Exhibition commencing December 1st

Sale starts December 4th on parts and continues on the merchandise and commences December 6th on machinery.

Circulars are being issued and can be had upon request at office of undersigned auctioneers.

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32x3½	9.45	10.40	35x4½	17.95	19.95
31x4	11.95	13.10	36x4½	18.45	20.45
32x4	12.45	13.45	37x4	18.95	20.95
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30x3½	8.75	2.30	34x4	15.00	3.65	37x4½	22.80	4.60
32x3½	10.50	2.45	35x4	15.85	3.75	35x5	23.10	4.65
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30 x 3½	8.73	9.13	33 x 4½	19.02	19.98
31 x 3½	9.18	9.65	34 x 4½	19.63	20.65
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31 x 4	5.00	37 x 4½	8.50
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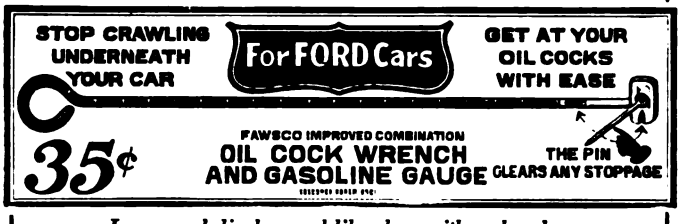
Motor World Contract Work Department

239 West 39th Street **NEW YORK**

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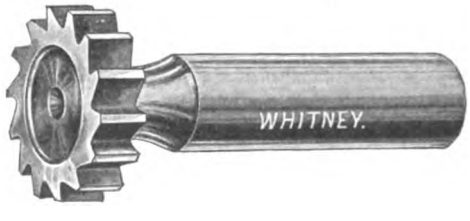
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ALLEN
WHO MAKES THE TIRE CASE





The Famous 43

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Wonder Worker Self-Curing Mohair Top Patches. Quickly and permanently repairs holes, leaks and rips in mohair tops. Absolutely waterproof.

These are a few of the 43. They all do what they say they do and do it well.

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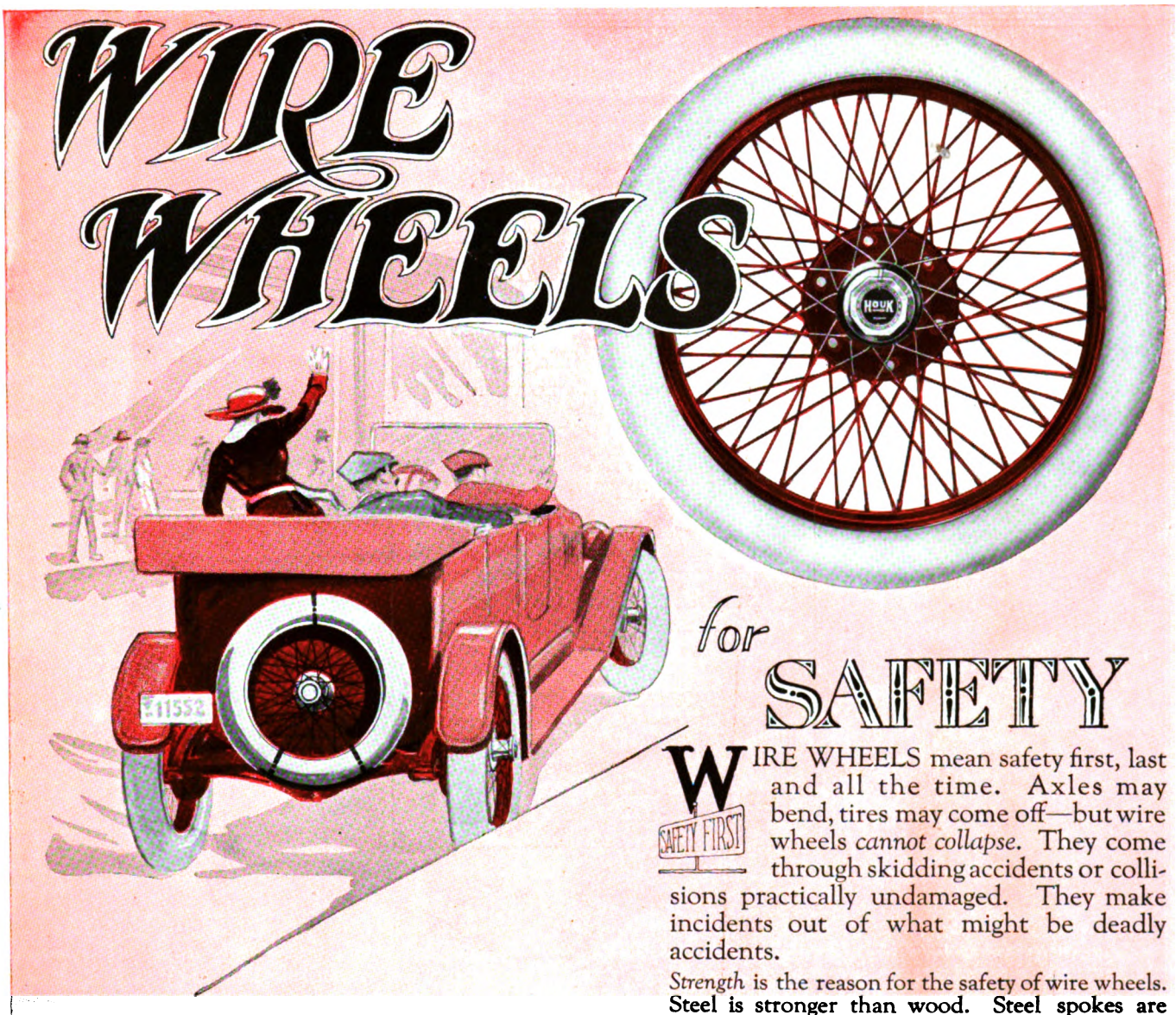
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for SAFETY

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Each of the wire spokes in a wire wheel is strong enough to stand a strain of 3200 pounds. Still more, the lateral or side strength of a wire wheel is far greater than that of a wood wheel. The triple spoke lacing in wire wheels provides a a set of spokes to take up the strain from any direction.

Shown at the left is a wire wheel and a wood wheel after a swinging weight has struck each such a blow as would occur when a car skids into a curb. The wire wheel is practically intact while the wood wheel is hopelessly smashed—nearly half of its spokes broken, the wood felloe badly split—entirely incapable of supporting a load.

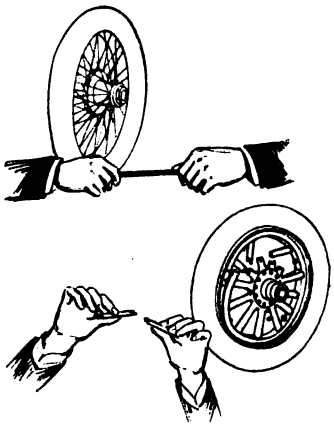
SAFETY is only one reason for specifying wire wheels on your next car or for putting them on your present car. Our booklet tells about the comfort, tire economy, quick change, and the many other reasons why many manufacturers of automobiles have made wire wheels standard or optional equipment. Write for this booklet today. It's free.

DEALER OPPORTUNITY

Unoccupied territory for exclusive service and sales agencies can be secured by established automobile distributors and accessory dealers.

A selling field of practically every standard make of car, with our liberal terms, offers unusual profit possibilities.

Ford agents and supply dealers should write or wire at once for special service and sales proposition on HOUSE Type Wire Wheels for *Ford* Cars.



To understand why a wire wheel can withstand any stress possible to a wheel, try to break a pencil by pulling from opposite ends. Then see how easily it is broken by bending it across. The first is precisely the way any force is exerted on the wire wheel. The second illustrates the ease with which side thrusts break the spokes of the wood wheel.

WIRE WHEEL CORPORATION *of* AMERICA

(Successors to Houk Manufacturing Co.)

Factories: BUFFALO, N. Y., and SPRINGFIELD, MASS.

Direct Factory Branches and Service Stations:

NEW YORK, 835 Eleventh Ave. at 57th St. CHICAGO, 23rd and Indiana Ave.
PHILADELPHIA, 328 North Broad St. LOS ANGELES, 1101 South Hill St.
SAN FRANCISCO, 1253 Van Ness Avenue

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A BATTERY SERVICE STATION is an all year business. To-day the owner drives his car in every kind of weather. He depends upon his Service Station to keep his battery in condition to start his cold, stiff motor, to light his lights during long, dark nights, to shoulder the responsibility of his ignition.

Battery service stations are profitable when they **give service,** for **real service** is the keystone to success. We want service stations in districts where we are not represented. If you are already handling a battery let us show you how you can **increase your sales** and **profits.** If you are not, let us tell you how we will help you go into the battery business. Write us to-day for the station in your city.

It is the duty of car owners who drive during the Winter to visit the U-S-L Service Station regularly—preferably twice a month—for Free Inspection.

One reason is to prevent your battery from freezing. For the electric system consumes relatively much more current for starting and lighting in Winter, thus tending gradually to discharge the battery. And the discharged battery will freeze if exposed to cold.

If you lay up your car for the Winter let the U-S-L Service Station take care of your battery properly and keep the plates in a healthy condition.

Our special U-S-L process for Winter storage prevents deterioration and insures that the battery will go into service in the Spring in first-class condition.

If you store your battery yourself remember that an idle battery slowly discharges and requires a charge at least once a month to keep it in a healthy condition.

Whether you will drive your car all Winter or store your battery, it will pay you to obtain advice from a U-S-L Service Station.

U. S. Light & Heat Corporation, Niagara Falls, N. Y.

Branches in New York, Cleveland, Detroit, Chicago, Kansas City, San Francisco, Washington, D. C.

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v. 10

MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIII
No. 10

New York, December 5, 1917

Ten cents a copy
Two dollars a year

Automobile Dealers!

New Hudson Contracts are Now Being Signed. Perhaps There is a Place for You

Hudson dealers have just closed another prosperous year.

Contracts are now being signed for another season. The line of cars that are to carry the Super-Six prestige, and the Company policies that are to accompany them assure another prosperous period for Hudson dealers.

Few changes are made in the Hudson distributing and selling organization. Men who have been identified with Hudson long, value the advantages in representing a car which holds such popularity with the public. Consequently, they seldom permit any condition to arise which will interrupt the continuation of the happy, prosperous relationship they enjoy with the Hudson.

Still, changes for one cause or another do occur and, therefore, this announcement is addressed to those who have felt they have been unfortunate in the line of cars they have had and who feel that with the right car they could give full scope to their abilities. The Hudson line gives great advantage to any dealer in increased prestige. A similar quality of prestige is demanded for the car from the dealer. Wherever such support is not received, changes become necessary.

If you feel you can improve Hudson representation in your locality, we suggest you write the factory. Perhaps we too recognize the importance of improving our representation.

HUDSON MOTOR CAR CO.
Detroit, Michigan

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Van Sicklen

ELGIN

SPEEDMETERS

On your motor car, a VAN SICKLEN Speedmeter is a compliment on the part of the manufacturer to your desire for equipment of unimpeachable character, quality and performance.

The Van Sicklen Company, Elgin, Ill.
Factory—Elgin National Watch Company

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Studebaker

THE name Studebaker is the kind of guarantee that every dealer should have behind him. It stands for 65 years successful manufacturing experience and millions of dollars invested in plants. It is the guarantee that has made necessary huge additions to the great factories at Detroit and South Bend. And it is the guarantee both of the quality of the cars and of the co-operation in selling that has led thousands of the best dealers in the country to seek Studebaker representation.

To link up with such a name, to get its weight back of his selling efforts, means much to every dealer.

If there is no Studebaker dealer in your town, write us for detailed information.

STUDEBAKER

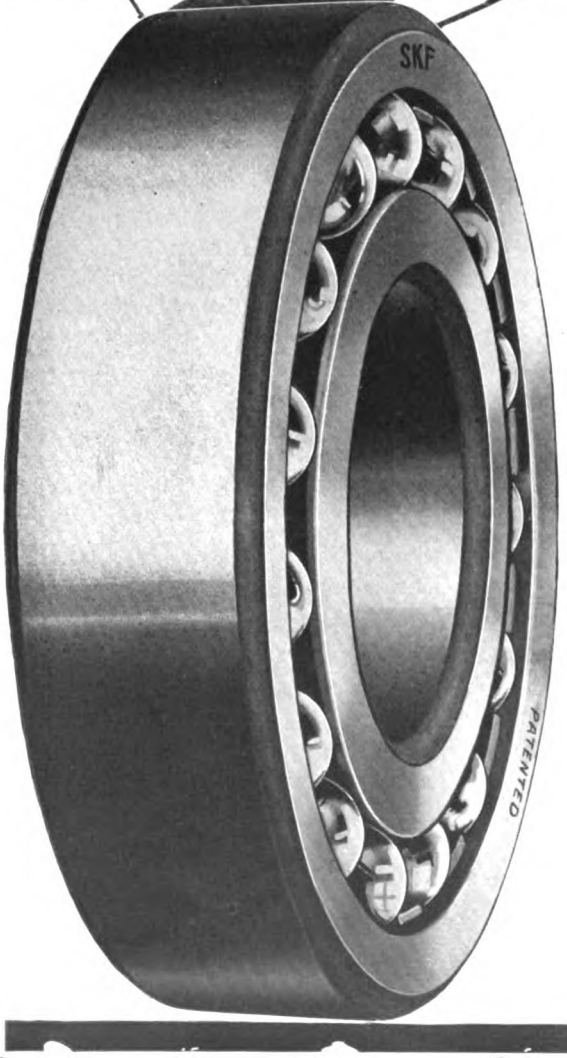
Detroit, Mich. South Bend, Ind. Walkerville, Ont.

Address all correspondence to South Bend.

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SKF





Watch the thousands of airplanes that are daily performing records for endurance flights—watch the performance of its parts.

An SKF equipped airplane is better fitted for the gruelling grind of air service—more competent to last through the racking strain of endurance flights because its full power is transmitted to the propeller with an absolute minimum of friction.

SKF BALL BEARING CO.
HARTFORD
CONN.

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
Charles B. Shanks, Manager

Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
H. F. Blanchard S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
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"NORMA"
BALL BEARINGS
(Patented)



Performance must be built into a machine—it is a thing inherent, not alone in the machine as a whole but also in every part, every construction detail. Failure of a so-called minor part or minor detail impairs machine performance as surely as a breakdown of the machine as a whole.

Failure of ignition or lighting system may result from a failure of a bearing in magneto or lighting generator. To safeguard against which, makers of these electrical accessories of the highest grade—of maximum performance capacity — have standardized on "NORMA" Ball Bearings.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped



THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust and Combination Bearings.

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GRAY & DAVIS STARTER for FORD Cars

SYSTEM COMPLETE **$85** F. O. B. BOSTON

THE sturdy Ford is really complete when equipped with the Gray & Davis Starter. Ford owners realize the value of this equipment, the necessity for automatic starting, especially in cold weather.

This is a winter business-builder. Progressive dealers who sell this system make liberal profits.

It is one of the most satisfactory accessories on the market. Practically every Ford owner is a good prospect. Let us tell you how other dealers throughout the country are now developing Ford Starter business.

Write for our proposition now. See our exhibit at the coming New York Automobile Show, Space C 28.

GRAY & DAVIS, Inc., Boston, Mass.

Canada—Universal Car Agency, Windsor, Ont.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIII New York, U. S. A., Wednesday, December 5, 1917 No. 10

G'way!



The motor car industry believes it is capable of carrying the whole load without any curtailment orders. Latest news despatches indicate that war officials are coming around to this same view. This industry has never been "stumped" yet. It should have a chance to show what it CAN do before being told what it CAN'T do.

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The Idea Pool Is Growing

SEND YOURS

Three weeks ago Motor World started an IDEA POOL.

All readers were invited to send in their ideas for keeping business going despite Winter and War.

The ideas are coming in.

Send Yours

Dealers and garagemen are telling what they plan to do this winter. They are telling of NEW IDEAS they are using and are going to use if war hurts business badly—as it may.

Every man who has a new thought on what to do when war or winter puts a crimp in business has a NEW IDEA.

Your ideas may save thousands of dollars for the rest of the trade if you let the rest of the trade have them.

Send Them Now

There are 22,000 who get Motor World every week. War and winter are going to hit all of them.

If YOU have one single idea that will help don't you think it would be nice of you to slip it along so the rest of the 22,000 could use it?

If the idea saved or made $1000 for each man it would represent $22,000,000.

Wouldn't you like to feel that you had put $22,000,000 into the pockets of your fellow men in this trade?

Send Your Ideas

Then maybe the trade will be able to do still better in buying Liberty Bonds and HELPING WIN THE WAR.

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DON'T TRY TO BE A JUDGE AS TO WHAT IS A GOOD IDEA.

Perhaps what you consider a small, worthless idea may be just the thing the 22,000 are looking for.

Send Them All In

Maybe you have read about this IDEA POOL but haven't thought much about it.
Think about it!

Maybe you have thought enough others would send in ideas so YOURS wouldn't be needed. Do you think that's just the fair thing to do? Won't you feel rather backward about using this IDEA POOL if you realize that you might have put in an idea but DIDN'T?

Shoot 'Em Along

Maybe you're a great big dealer and feel that you don't need this IDEA POOL. Maybe you don't, but there are thousands who do.

Be one of the gang! Get into the pool. No matter who you are, or where you are, or what you do—

Send Your Ideas

Suggestions as to what is needed in this pool are contained in the coupon in the corner of this page. If you would rather write a letter than fill it out write the letter.

SEND THEM IN

The pool is about to close, so the most important part is that you send them

NOW

Fill In! Tear Out! Mail at Once!

War Questionnaire

I—LABOR

1. How many of your employees volunteered for military service? .....
   What were their positions in your employ?. .....
2. How many were taken in the first draft?.....
   What were their positions?.....
3. How many more are eligible?.....
   What are their positions?.....
4. How have you filled the places of those who have gone?...
   .....
5. Are you using any female labor as a substitute?.....
   In what positions?.....
6. How do you plan to meet any labor shortage?.....

II—BUSINESS

1. Has your business increased in any departments?.....
   How much?.....What departments?.....
2. What per cent is your business below normal, if any?.....
3. What extra or new business activities have you taken on, such as tractors, trailers, farm lighting systems, trucks, extra machine-shop work, etc.?.....
   .....
4. Which have been most successful?.....
5. What extra or new activities do you plan to take on?.....
6. What changes in your business are you making or contemplating to meet changing conditions?.....

Your name.....
Company .....
City .....

The address to which this should be mailed is:

MOTOR WORLD
Editorial Department
239 West 39th Street, New York

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Plan Mammoth Truck Drive-away

Government Trucks To Be Driven Overland To Atlantic Ports for Shipment Abroad

WASHINGTON, Dec. 3—You have heard frequently of automobile drive-aways—of dealers coming to motor car factories and driving overland, by their own power, the automobiles they required for retail sales. But the coming year, commencing with January, will witness a steady, unceasing constant drive-away that will force all past drive-aways into insignificance—the driving overland by their own power of 30,000 trucks from factory to seaboard for shipment to Europe.

You will witness the 30,000 new heavy duty war trucks, rated at 3 tons capacity, possibly filled with parts, carrying four drivers on each, the first standardized war trucks, the first to bear the name U. S. A., leaving the assembly plants in the Middle West, driving by their own power to the points of embarkation.

As a great horde, traveling over hundreds of roads, much like an army of locusts, these trucks will come to their destinations—leaving the factories singly or in small convoys, arriving at the seaboard points in hundreds and thousands, beginning as 30,000 units, ending as a gigantic army of transports, a sight to delight an observer from Mars, a display to depress the spies of Prussia.

This vast drive-away plan now contemplated by General Chauncey B. Baker, Chief of Embarkation, Quartermaster Corps, in collaboration with the Military Truck Production Board and the Highway Transport Committee of the Council of National Defense, includes many possible advantages and aims particularly to:

(a) Save freight tonnage
(b) Supplement railroads
(c) Train military truck drivers
(d) Mentally vizualize the trucks to the public
(e) Develop military highways
(f) Test each and every truck

A freight car has a capacity for carrying two of the new trucks. The drive-away therefore saves the use of 15,000 freight cars, which means that 15,000 freight cars with capacity for 40 tons each, or 600,000 tons in all, will be free to haul other necessary war supplies.

The trucks, with capacity for 3 tons each, may themselves haul full loads of necessary repair parts and possibly other supplies manufactured in the same cities where the trucks are assembled—a total load of 90,000 tons, a saving of 2000 freight cars. Thus between the use of the motor power and the utilization of the truck hauling capacities, a total saving of 690,000 tons will be effected, which means the release of 17,250 freight cars for other purposes.

The new trucks, standardized, composed of many units combined of features manufactured in different plants, are strange to all truck drivers. The military truck driver must be able to handle his truck as if it were a touring car. He must be familiar with minor repair work, adjustments, loading and unloading. He must be sufficiently familiar with his truck to be able to handle it in crowded city streets, in strange, unlighted roads, and under all and any conditions that can arise. And the drivers, taking turns at the wheels, guiding the trucks through the highways of the United States, over mountains, through cities, over good roads and bad, will secure an experience that will be invaluable for service across the ocean.

In addition, the farmer seeing before him trucks hauling supplies thousands of miles, and the manufacturer watching with interest the transport of 90,000 tons of spare parts and other war needs, will have brought home to them, concisely and tangibly, the value of the motor truck and the vast fields of transportation for which it is adapted and as yet unused.

Our roads in many sections are urgently in need of repair. Maintenance of many highways has been neglected. Our War Department, urging the construction of the highways, has been obliged to devote effort to many directions and the roads have suffered as a result. The drive-away, calling upon the facilities and aid of the Highway Transport Committee, will also thereby include the complete co-operation of the highway commissions of every State through which the trucks will travel. In fact, experimental pathfinders, already engaged in this work, are under the observation of the committee and the road commissioners, and the result will be a network of military highways ranging from the Middle West to the Eastern seaboard that will be worthy of the name and possibly equal to any roads on earth.

The last of the advantages enumerated—the testing of every truck—is one of extreme importance. Our trucks for war service will operate more than 3000 miles from the place of manufacture. They will, of course, be close to established repair bases and assembly plants, but they will, to be most efficient and valuable, have to leave our shores as nearly perfect as possible. And this result can be attained only by thorough tests made in this country, such as the tests which will be encountered in the drive-away when all adjustments and imperfections can be readily detected and corrected. The first sample trucks have been, as reported in news dispatches, subjected to grinding, grilling tests, and found almost perfect with the exception only of several minor parts. And it is likely the 30,000 trucks will be found fit with the exception of those minor details of error that will follow the speed assembly work of the various assembly plants—and it is such troubles as these that will be quickly emphasized in the overland drive-away.

The lines of travel have not yet been completely worked out, and cannot be until the assembly makers' contracts are awarded, but the general plan now contemplated includes the use of many feeder traffic lines operating from North and South to the main arteries of travel, which will probably include the Lincoln Highway and one or two parallel lines.

In all probability the contracts will be awarded to makers in Detroit, Kenosha and Clintonville, Wis.; Indianapolis,

"Over There"

Your Country Needs You

Mail This Blank

This is the enlistment blank, the key to one of the greatest schools on earth, the key to opportunity, to health, experience, training, education, travel and adventure. Turn the key—PEN and INK will do it—fill it out and mail it in to-day—and open the door to life's great offering. You serve your country, work for Democracy, do your duty, and, in addition, gain chances few men on earth can hope for.

Volunteer Department, 119 D Street, N. E., Washington, D. C.

I desire to enlist, as a skilled workman, in the Aviation Section of the Signal Corps.

Name .....

Address .....

.....

At present employed with .....

.....

Trade ..... No. of years in trade .....

If you will be called by draft, when? .....

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Tell the People That You Are a Real Business Man

Get Your Newspapers to Quit Classing the Industry You Represent as a Companion of Perfumery and Tar Soap

THE presentation of facts to the war officials has brought about a change of mind on their part. They now admit, as told in newspaper stories, that there is no necessity for curtailing the motor car industry and that the industry will adjust itself as conditions demand.

This is cheering news. At one time it looked as though curtailment orders were going into effect at once and that production was to be affected by arbitrary measures rather than by conditions of war.

The present plan is what Motor World has insisted was the correct plan, and we wish to assert as our belief that our government is capable of handling the situation and is glad to take advantage of such facts as concern the country and its industries. Withholding these facts would be unpatriotic.

There is still an existing public opinion that is erroneous. The public—as indicated by the newspapers—still considers the motor car as a non-essential and in a class with such luxuries as perfumery and scented soap. This led a majority of the public to believe the war officials were taking the best course when it was proposed that the industry be curtailed. The public and the newspapers said: "Why not? The motor car is a luxury and a non-essential."

This we know to be untrue, and it is our duty as businesslike representatives of America's third largest industry to let the facts be known. We should sell the newspapers on the character of our industry and through them cause the public to realize the facts.

Every dealer is in close touch with the newspapers in his own town. Knowing the men on the newspapers, he is in the best position to talk with the men who direct the policies of the newspapers and get a square deal. The newspapers should first of all eliminate the term "pleasure car." Say "passenger car." Ask them to make this an office rule. Make it a rule in your own office also, and cut "pleasure" out of all your advertising.

Having talked with the newspaper publishers, ask them to print the story that appears on this page. If there is an association in your town have a committee take this matter up with the newspapers. Talk it over like business men. Present the facts.

Ask Your Newspapers to Print This Story

Send us a clipping. Also tell newspapers they may if they wish use without credit the cartoon that appears on Page 5 this week

LATEST news from Washington to the effect that any radical curtailment of the motor car industry is unlikely has had a cheering effect among the automobile men of this city. A better tone is noticeable in business and conditions generally have improved.

When the first rush of news from the war center of the country indicated that orders might be issued suppressing the industry the automobile men were worried, inasmuch as any radical curtailment at once meant that their business would be curtailed to the same degree as was factory production.

Local automobile men believe the changed attitude of the war officials is due to the presentation of facts to these officials by the industry.

The war officials were shown by figures that there is no steel shortage such as would justify a curtailment order, that many factories can get along without alloy steels, that the coal mines are operating at 75 to 80 per cent of capacity, that much of the load of shipping can be taken from the railroads by driving cars from the factories, that labor and all other problems can be handled by the factories without in any way interfering with munitions manufacture. It was also shown that the industry is big enough to make both cars and munitions, meeting all problems that would arise.

Washington has also indicated that the car may not be the non-essential that it was first considered. It has also stated that many non-essential industries may be permitted to continue so long as their operation does not interfere with war work. It is believed that best results will be secured if adjustment is left to work itself out in response to conditions.

The local automobile men are still somewhat dissatisfied with the opinion of some of the public regarding the motor car and its character. They say many have thoughtlessly classed it as a non-essential, whereas it is one of the most essential articles in America to-day.

A railroad authority has stated that the cars of America can seat more people than the railroad cars, and the motor car men assert that were it not for the automobile the burden of the railroads would be much greater than it is.

Transportation and movement from place to place is one of the greatest factors in America's life, and motor car men point out that without automobiles there would be a slowing down of civic and business life that would be injurious to the entire country.

Aside from this general condition, it is stated, something like 80 per cent of the cars are owned by farmers, who use them almost entirely for business work. A car is considered the equivalent of a team of horses and it can be run between the farm and town by a boy or girl, whereas a team generally requires a man. Also there is the obvious saving of time.

Another point that the automobile men bring out regarding all industry is that the rule should be expansion rather than contraction. By this they mean that when the war demands a certain amount of an industry's capacity that industry should be compelled to expand and carry a heavier load rather than cut down its normal business—provided this does not interfere with war work.

Expansion, they point out, will keep the dealers, stores and businesses in other than manufacturing centers going at full head, whereas a cutting down of factory production would have an adverse effect upon every town and hamlet in the country. And the towns and hamlets, with bonds and men and morale, are the big factor in the winning of the war.

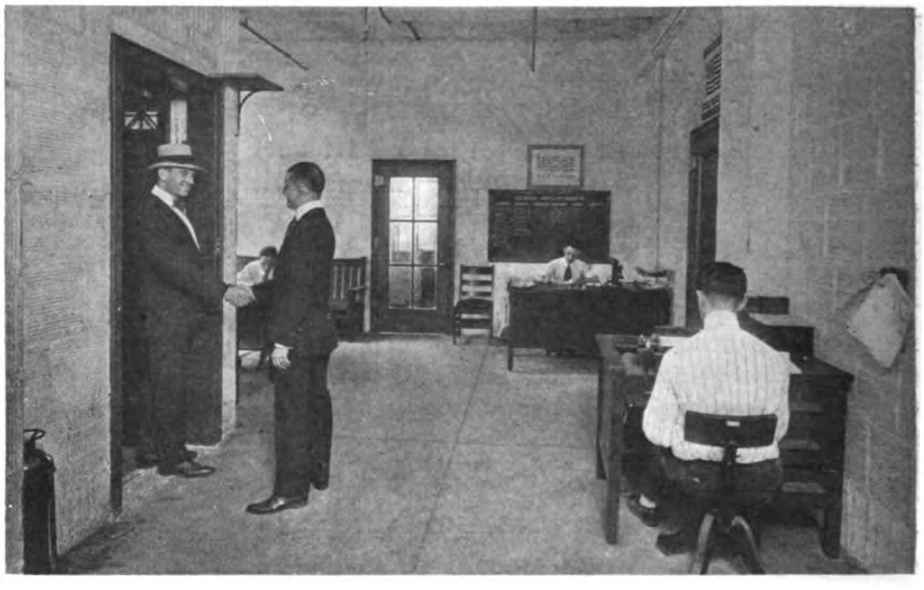
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3 Kicks in 6600 Repair Jobs

A new system of handling service has been developed by the Colt-Stratton Co., which handles the Dodge in New York. After five months of operation it checked up on itself and found that it had handled 6600 jobs and had only three complaints. The service problem is every dealer's and repairman's problem. This story tells how one dealer has solved it.

SIXTY-SIX HUNDRED repair jobs handled in five months and only three complaints! Just one kick for every 2200 jobs, or an average of one every six weeks. Think of this, when more than fifty cars are repaired every day. This is not a service manager's dream of Utopia but the record of the Colt-Stratton Co., New York, distributer of Dodge Brothers' car.

Every other car was delivered in perfect trim, in exactly the condition that the owner expected to find it. It is nothing short of astounding that 6597 cars out of 6600 should be in perfect shape.



Harris, the Courtesy Man or Official Host, welcoming a customer the instant he steps from the elevator. The door to McIlvrid's office is seen at the rear

How the Problem Was Solved

THE splendid record made by the Colt-Stratton Co. is partly due to a modern service station—it has only been occupied a short time—partly to a splendid system, partly to fine shop equipment, and partly to a splendid body of men, enthusiastic and anxious to co-operate.

The company had these things months ago, and for months and months before that, and try as they could, absolute perfection could *not* be attained. No matter how they tried, the final testers would overlook some details and when the cars were delivered the owners would kick. They tried to hold the mechanics in the shop responsible for any oversight, but it was found impossible to do this for many reasons.

The Solution

The solution of the problem of perfect workmanship was hit upon when it was decided to offer each final tester a bonus of $5 per week, provided all cars passing through his hands during the week fully satisfied their owners. On the other hand, one complaint would cause a loss of $7.50 to the mechanic, wiping out the bonus and $2.50 besides.

Six men are receiving this bonus, and they are the same men that were employed before the system was put into operation, so that it is not a question of having men who are above the average. They are just the usual run of testers, probably no more expert than are found in the majority of shops, so that the wonderful improvement is due entirely to the use of the bonus. The offer of $5 per week is sufficient to spur them to such a point that even the slightest defect is noticed.

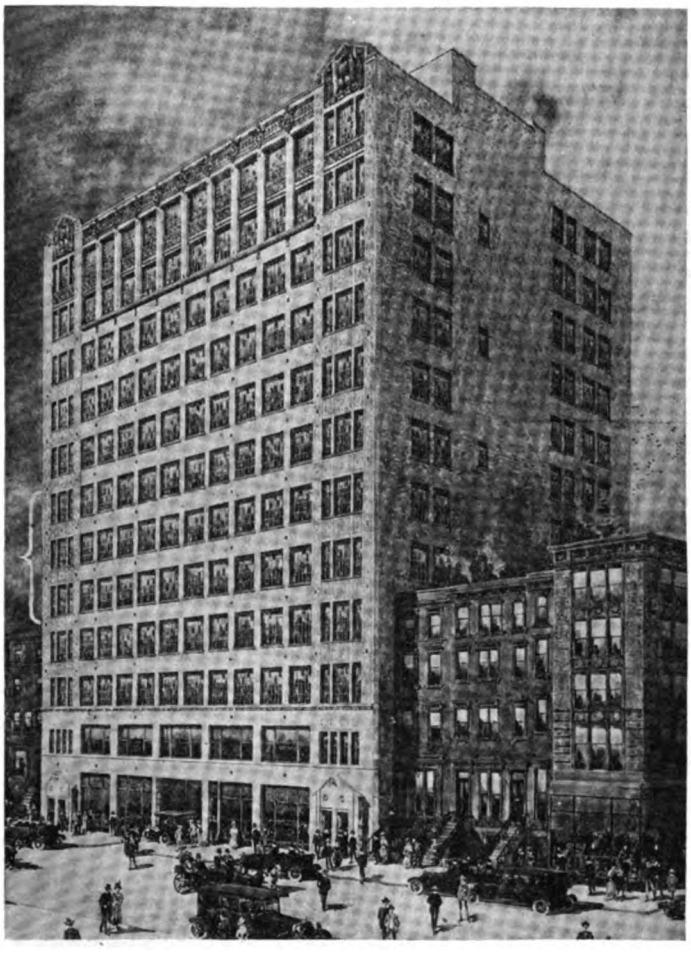
The system is extremely popular with the men. The testers themselves are tickled to death, and every one else in the shop wants to be a tester in order to have the opportunity of earning $5 more per week. The extreme good will is undoubtedly partly the result of the fairness with which the new policy is administered.

Two of the three complaints were inconsequential, and information on the third is unavailable. Unequally adjusted brakes was one cause for loss of bonus and neglect to remove the binding wire from a replaced spring was the other. In all three cases the men were given a chance to inspect the cars to convince



Harris in the act of taking down instructions regarding service work on a customer's car

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Three light, spacious floors are occupied in this building. The picture was taken from Broadway so that the accessibility of the location is evident

Assets Worth Thousands

Two letters from satisfied customers

July 2, 1917.

Colt-Stratton Co.,
Broadway at 57th St.,
New York, N. Y.
Att. Mr. Wm. McIlvrid, Jr.,
Service Mgr.
Re: Dodge Car No. 98894

Gentlemen:

Three times during the past ten days I have met with an accident with my car and each time had occasion to call on you for service which was performed by you through your Mr. Harris so satisfactorily that I take time to give you this expression of thanks for the promise of service truly being performed in all three instances.

I thank you again for the promptness and courtesy with which you have handled my work and remain,

Yours very truly,

L. Sonneborn Sons, Inc.,
(Signed) L. B. Benjamin,
Engineering Dept.

LBB/FR.
302.

July 5, 1917.

Colt-Stratton Company,
New York City.
Attention: Courtesy Department.

Gentlemen:

I take this opportunity to say that I believe the establishment by the Colt-Stratton Company of a Courtesy Department marks a new epoch in the transaction of business of this nature, and that it will fully repay you in the increased confidence which your patrons will have in your service, and in the manner in which claims or adjustments of various kinds will be made by you.

I want to thank you for the attention you kindly gave me on the occasion of my visit to your office.

Very truly yours,
(Signed) R. C. Muir.

R. C. Muir,
No. 737 Hatch Avenue,
Woodhaven, L. I., N. Y.



McIlvrid is the court of last resort on service matters. Here he is in his attractively furnished office smoothing out the difficulties of a customer

themselves of the fairness of the decision. Three men have perfect scores so far and the other three have each suffered the loss of one bonus.

The credit for the bonus plan is due entirely to the service manager, William McIlvrid, and is the result of considerable thought on service problems. He has worked out all the details so carefully that no difficulties have developed in the system so far, and it does not look as though there ever would be any. As head of the service department, he has taken full charge of this part of the work and himself keeps the simple records by which it is determined whether each tester receives his bonus.

When the owner or chauffeur brings in the car it is tested and a full list of defects is written down on the tester's report. The owner then authorizes all or part of these repairs, as he desires. A shop order is made out accordingly and this the owner signs, keeping the duplicate.

After the work is done the car is tested by one of the final testers and any defects which should have been repaired as called for by the shop order or any defects which have developed since the original test was made, and which consequently are not mentioned on the original tester's report, are made note of.

The reason for doing this is to protect the tester as well as the customer. For example, suppose a customer asked to have his brakes adjusted. The original tester reported that adjusting would help, but that the brakes should really be relined. To save expense, however, the customer decided that adjusting would do.

The final tester examines the car after the work is done and he reports that the brakes have been improved but are not in A1 shape and cannot be made so without relining. In case the owner complains two weeks hence that the work was not properly done, the preliminary tester's report and the final tester's report in conjunction with the shop order show that the tester is not to blame for the defect.

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The payment of the bonus is delayed four weeks. This is necessary in order to give owners a chance to complain and afford an opportunity for the complaint to be investigated. If a customer calls up on the phone or writes a letter stating that this or that is not right, the man does not lose his bonus, but the car must be brought in and the work carefully gone over.

New Service Quarters Established

WHILE the simple expedient of giving a bonus to the final testers is the main reason for perfection of the service, back of this is a splendidly equipped modern service station, intelligently operated and carefully systematized.

A few months ago the company took possession of the fifth, sixth and seventh floors in a new loft building on Sixty-fourth Street, just west of Broadway. It is ideally located, in that Broadway is the principal street for automobile travel, and the service station is only about three short blocks from the salesroom, which is between Sixtieth and Sixty-first Streets on Broadway. The building is 100 x 150, giving a total of 45,000 sq. ft. of floor space.

The fifth floor contains the general offices, the stockroom and the new car department. The offices are situated along the front of the building, so that excellent light is secured. The remainder of the space is divided between the new car department and the stockroom. The sixth floor is used for repair work and contains a bench running the full length along the front of the building. The seventh floor, in addition, contains machine tools and other equipment for making more extensive repairs.

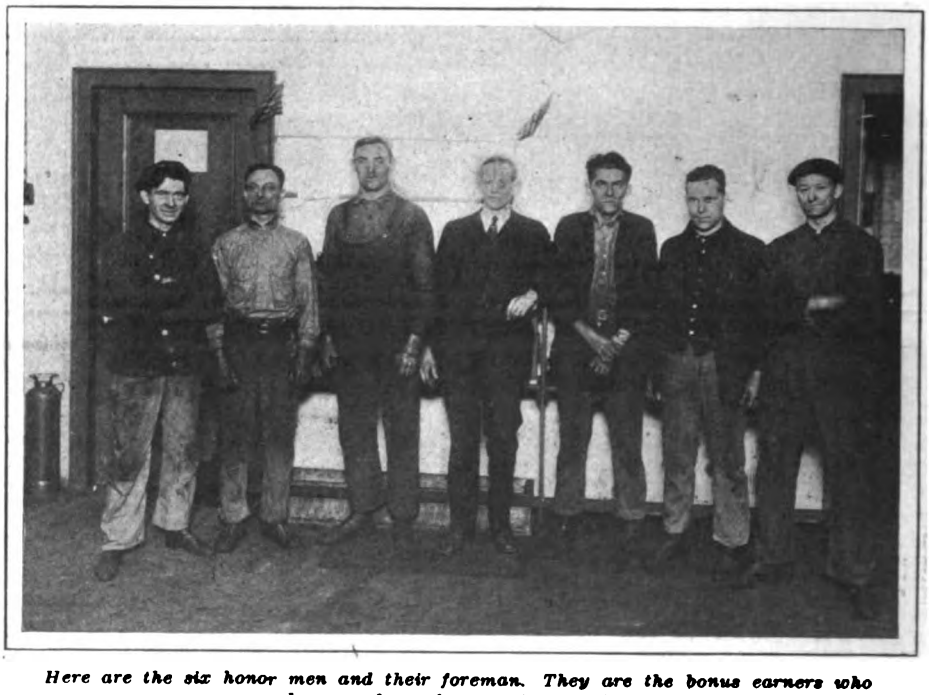
Saving Time

Quick means of communication is one of the features of the new plant. In fact, the whole question of saving time has been given very careful thought. In the first place, the building is supplied with three elevators and one is large enough to accommodate two Dodge Brothers' cars at one time.

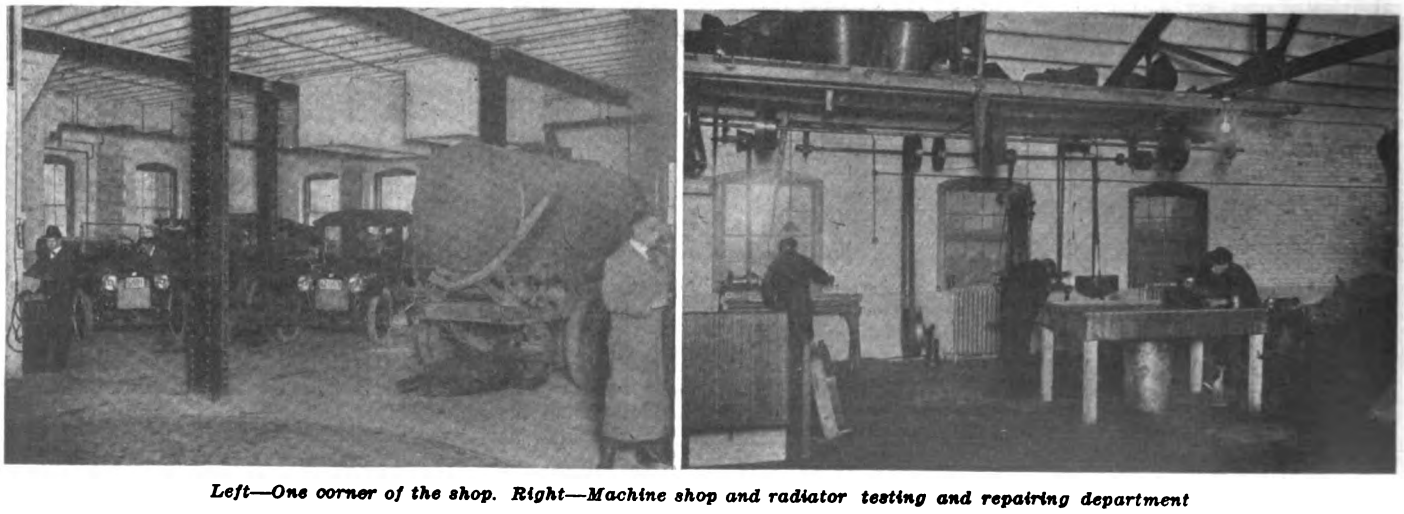
The street entrance to the elevator takes the form of a vestibule, in which are located two large turntables.



This is William McIlvrid behind his desk with two telephones and a dictaphone within easy reach. Mac always carries a smile, as the picture shows—a tremendous asset in service work

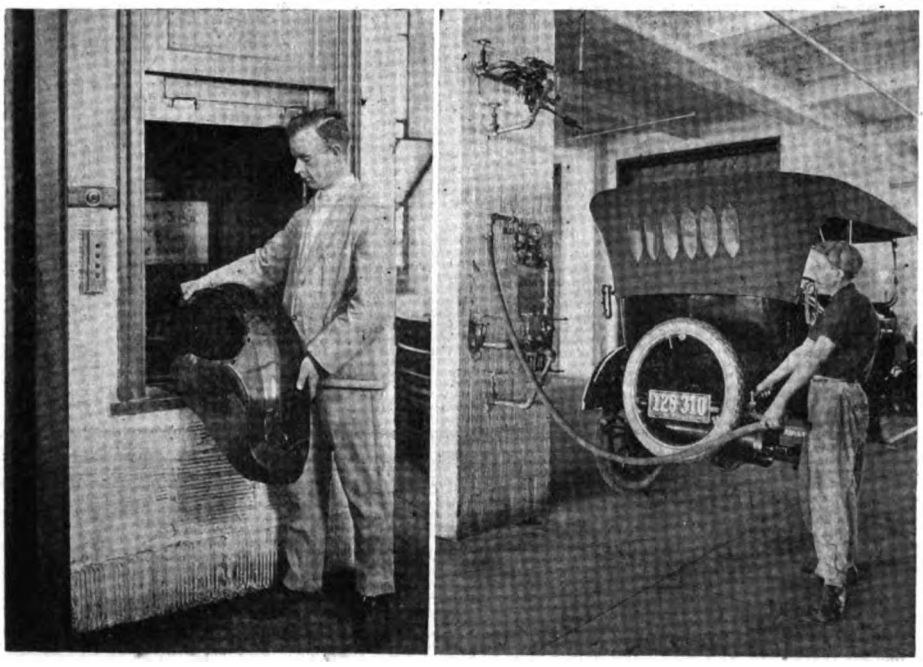


Here are the six honor men and their foreman. They are the bonus earners who have made perfect service possible



Left—One corner of the shop. Right—Machine shop and radiator testing and repairing department

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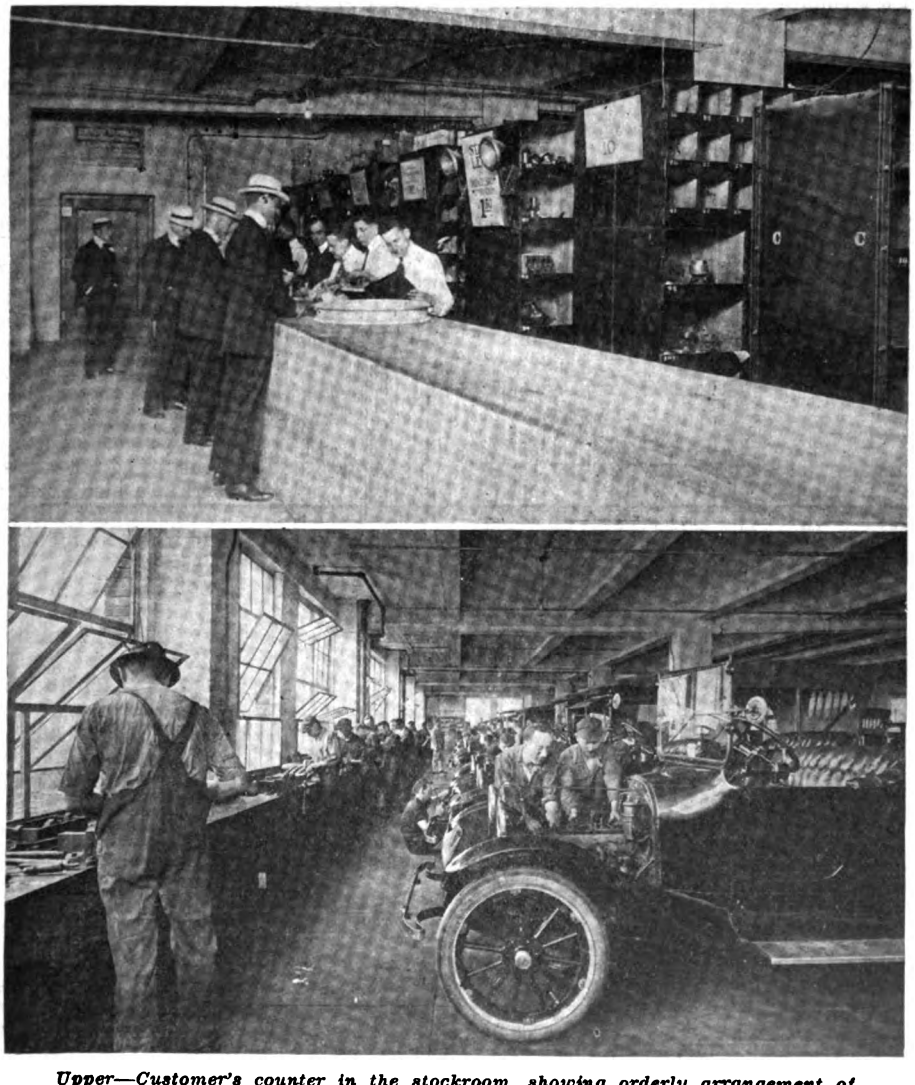


Left—Removing a fender from the dumbwaiter which is electrically controlled from the stockroom. Right—Gasoline system which goes to all three floors

Speed of communication has received careful consideration in the layout of the station. The offices are adjacent to the stock and new car departments. This is as it should be, because it enables a new owner or a sub-dealer to step from the office right to the car which he is to drive away in; or if a customer desires to confer with any of the members of the office organization before or while purchasing parts or accessories, it is only a step from the stockroom to the office. Furthermore, practically all the clerical work incidental to running a large stockroom may be done in the office. It is a very compact unit.

On the floor above, the smaller service jobs are taken, and on the top floor of the three floors the larger ones are done. The service manager's office is located in one corner of the lower shop floor, and it is only one short flight of stairs down from his office to the main office, or one short flight up to the second shop floor.

A Lamson pneumatic system makes it possible to transfer very quickly the orders from one department to another, and it also enables one cashier to handle the money for the whole plant. There is no necessity for running back and forth with money or order forms of various sorts. Time can be saved by using the pneumatic system. The system is simplicity itself and differs from many other systems in that the compressed air is supplied by bellows which is operated by foot. Three compressions of the bellows is sufficient to deliver the carrier any place in the plant. It is made by the Lamson Co., Boston.



Upper—Customer's counter in the stockroom, showing orderly arrangement of bins behind. Lower—Looking across the shop, a well-lighted, well-ventilated, neat, cheery room

Pneumatic Tubes Used

Six receiving and dispatching 2¼ in. tubes constitute the system. At the cashier's desk in the main office on the fifth floor there are two dispatching and receiving tubes in a single cabinet. To this station come cash received from the adjoining small parts salesroom and from the service department on the floor above, time tickets from the shops on the sixth and seventh floors, requisitions from all outlying departments and bills and sales vouchers from the service department and the "new car" shop on the seventh floor.

In the stockroom, where the small parts are sold, there is one receiving and dispatching tube through which cash is sent to the cashier. In the service department there are two dispatching and receiving tubes in one cabinet which connect with the central station in the main office. On the seventh floor, in the "new car" division, there is only one receiving and dispatching tube. Through this tube the carriers are dropped by gravity to the station in the service department, whence they are relayed by air to the station in the main office.

Longest Tube 50 Feet

The tubes are made of aluminum alloy with steel sections where they pass through the concrete ceilings. The cabinets are oak, golden finish, with red-felted receptacles for the carriers. The longest single line of tube, measuring about 50 ft., has one 22 deg. and two 90 deg. bends. The shortest line is about 8 ft., a straight section between the sixth and seventh floors. The medium line, which connects the small parts salesroom with the cashier, is about 18 ft. with two 90 deg. bends.

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The operators at each station roughly estimated the number of transmissions per day at 100. The tube system also keeps the cash, taken in at two widely separated points, concentrated at the cashier's desk.

An automatic dumbwaiter connects the three floors, so parts may be delivered without delay from the stockroom to either of the shop floors. The dumbwaiter is electrically driven and operated by a push button. Originally it was possible to control the dumbwaiter from any one of the three floors, but it was found that a mechanic passing the dumbwaiter would push one of the buttons just for the fun of it and consequently the dumbwaiter was taking joy rides a large part of the time. As a result, it was found necessary to remove the buttons from the shop floors, thus leaving the control entirely to the men in the stockroom. As it is now, if a man on one of the shop floors desires the dumbwaiter he must ring a bell, which summons one of the stockmen, who talks to him through a speaking tube.

An internal telephone system makes it possible to transact most business without any man leaving his desk.

A real innovation has been adopted in the shop. When the mechanic strikes a snag he will not waste time in trying to figure the trouble out himself, nor will he be obliged to leave his work and look up the service manager. At convenient points in the shop there are four push buttons which operate four bells summoning the service manager to the workman. This system is unusual, but it is sound common sense and a pleasing example of the democratic spirit which prevails. The manager is obliged to go to the mechanic instead of the mechanic going to the manager. It has worked out splendidly, as no time is wasted by the mechanic; he pushes the button and then keeps on working until the manager comes.

Another democratic shop rule which has worked out very well is that anyone in the shop may walk into the manager's office at any time for information. There is no formality about it. Fortunately the manager is a man who enters heartily into this idea of co-operation and does everything in his power to give the man the information he desires.



Turntable and three elevators. The center one is large enough to carry two Dodge cars at once

Wash All Cars

It has been found that owners are better pleased and the interests of efficient shopwork are better served by washing every car before work is begun on it. Of course, there are exceptions to this rule, but only where the work must be rushed or the repairs are minor ones that the owner does not desire to have the car washed.

The policy of washing cars is a good one in that it is a great aid in keeping the shop scrupulously clean and also because the owner is much better pleased with his car. The fact that it is bright and shiny instead of being smeared with grease and mud must have a psychological reaction; it must make him feel that a better job of repair work has been done.

An interesting shop practice which should find wider use is the use of rags instead of waste. The lint of cotton waste causes all sorts of trouble, from clogged gasoline lines to jammed nuts, and is worth avoiding, since the solution is so simple. The rags are washed over and over again so that the cost of using them is less than the cost of cotton waste.

Overalls and jumpers are also washed by the porter, and workmen must always use clean overalls to avoid complaints regarding dirty upholstery.

If an owner does not call for his car within 24 hours of the time he is notified it is ready, he is charged $1.50 storage per day.

Particular care has been taken to prevent fire. Fire extinguishers are conveniently located at many points, and to prevent theft of the small extinguishers an annunciator bell rings in the office the instant an extinguisher is removed. Then a member of the staff rushes to the point indicated, and if there is a fire he rings the large gong which is used for starting and stopping work; with this fire signal, the workmen get their extinguishers, as prearranged, and form in line to await further orders.

There is nothing especially unusual about the equipment of the shop; standard tools are used throughout and the same applies to the system. The important point, however, is that the equip-



Owners' school. A cutaway chassis, motor, axle and similar parts are used

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ment is complete and the system is adequate, with the result that perfect work is turned out.

Two service cars are maintained and no charge is made for towing around New York City, provided the customer agrees to have the work done in the Colt-Stratton service station.

Courtesy an Important Factor

ONE of the most important men in the organization, and likewise one of the biggest factors in the success of the system, is the "Courtesy Man." His desk is in the reception office on the shop floor and is within a few feet of the elevator. It is his job to greet all customers and to see that their wants are satisfactorily met.

It is he who gets hold of the proper men to talk to the customer about what he wants, and he sees to it that the customer is served promptly and satisfactorily. Owners have been lavish in their praise of this feature. This man is in one sense the connecting link between the shop, the stockroom and the office on the one hand and the customer on the other hand. In another sense, he is the OFFICIAL HOST. He is the one man in the organization who devotes his entire time to the customer, who in the same sense might be considered the guest.

This man is far from an expense; he is a profit producer. His salary need not be charged to general overhead, neither should it be considered that he earns his money by engendering that abstract thing called good-will. This is his main job, and it is hard to estimate his value in dollars and cents, although the figure would be a large one. However, he is a valuable salesman without trying to be and is instrumental in making several sales every week.

On the average, he turns over the names of ten new car prospects and three used car prospects per week, and a goodly number of these become owners. These names are given him by customers who are pleased with the service they receive.

The Courtesy Man takes a great deal of the detail off McIlvrid's shoulders, but it should not be thought for this reason that the latter is inaccessible. Far from it; he has a big sign on his office door saying "Walk In," and anybody that walks in gets a real welcome. The office door, by the way, is so placed that it can readily be seen from the elevator or from the Courtesy Man's desk. McIlvrid handles all complaints the Courtesy Man cannot adjust; he is the court of last resort.

McIlvrid sees every customer before he leaves the building with his repaired car. Just before the customer is ready to drive out McIlvrid is notified and goes to the customer. He tells him that he has personally supervised this work and that all pains have been taken to see that it is all right. This is not a stereotyped speech, by any means, but is a simple statement of the truth. It is a personal touch, however, that is so valuable that the good obtained thereby is hard to estimate. It brings the service manager and the customer closer together; it makes them acquainted with each other, makes it easy to adjust any differences which may arise and, best of all, it gives the customer a feeling that the Colt-Stratton company is trying hard to render the best service possible.

Before the car is allowed to leave, the customer must present a release slip to the traffic man, made out by the cashier when the bill is paid, and no car is allowed to leave unless the owner has this slip. A receipted bill is not sufficient, for the reason that the owner keeps it, while the release slip taken up by the traffic manager is sent to McIlvrid's office and is proof that he had a right to let the car go out of his department, removing all responsibility on this score from his shoulders.

The traffic man is sort of auxiliary Courtesy Man as well, inasmuch as it is he who meets the owner on the elevator. He determines which floor the car is to go to and where it is to be placed. He also sees to it that the car is placed exactly where it is desired, and not a few inches off, one way or the other. This is necessary in order to keep the aisles straight, so that the walking spaces between the cars may be uniform. This saves time in walking. The traffic man also sees to it that the car going out is filled with water and that any articles removed from the car are replaced.

When a car is brought in, all loose articles are removed and put in a locker. This work is done under the direction of the head porter, who also replaces these articles and fills the radiator before the car is allowed to go out.

Get the Idea Across

WE are all convinced that the motor car is an essential, but a considerable portion of the public doesn't fully realize it.

The motor trade's problem is to get the people into right ways of thinking about this industry.

Here is one way to help.

Let a dealers' association, or a dealer, or a group of dealers, promote an essay contest among school children under 15 years of age on "Why the Motor Car Is an Essential." Each essay must not be more than 250 words in length and must include seven reasons why the car is an essential.

Explain to the school superintendent that you desire all the possible data on the subject and that it will make the children think and do research work. Carry the plan into all the schools of your town.

Set a fixed closing day and hour for the receipt of essays.

Give a first prize of $15 and 10 or 20 $1 prizes.

After the essays are in run a big ad with the winner's essay and picture and with it print ALL the reasons why.

The results will be that the children will ask "dad" and every one else for the reasons and the public will sell itself on the idea you want to get across.

Incidentally this intensive thought by the public on the subject of motor cars will create prospects and help sales.

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MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tires	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	BEARINGS Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Abbott 6-44	$1295	6	3½x4½	25.3	224.0	4.75	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy-1	6	Remy	⅞	Stmbg.	V.	P.	Unit M.	3		Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	122	32x4	SS.	Wd.	S-E.	Stewart.	3	B.	R.	R.
Abbott 6-60	1595	6	3½x5½	29.4	303.1	4.03-1	Cont.	L.	H.	G	Sp-Pr.	C.	Remy	6	Remy	⅞	Stmbg.	V.	P.	Unit M.	3		Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	122	34x4	SS.	Wd.	S-E.	Stewart.	3	R.	R.	R.
Allen 41	1095	4	3½x5	22.5	220.9	4.45-1	Own.	L.	H.	T.	Cir-Sp.	P.	A-Lite-2	6	Conn	⅞	Stmbg.	V.	DD	Unit M.	3	Own	Sp.B.	Springs.	F.	Adams	Tor.T.	112	32x3½	SS.	Wd.	S-E.	Stewart.	2	BP.	B.	B.
American A	1375	6	2½x5	23.4	230.1	4.42-1	Amco	L.	H.	P.	Cir-Sp.	P.	G&D-2	6	G&D	⅞	Zenith	V.	P.	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	122	32x4	SS.	Wd.	S-E.	VanS.	3	BP.	BR.	B.
Anderson 6-40	1435	6	3½x4½	25.3	224.0	4.42-1	Cont.	L.	H.	P.	Sp-Pr.	P.	West-2	6	Conn	⅞	Zenith	G.	P.	Unit M.	3	Detroit	Bevl.	Springs.	S-F.	Hess	Springs.	120	33x4		Wd.	S-E.	Stewart.	3	R.	B.	B.
Apperson 6-18	2200	6	3½x5	29.4	288.6	4.25-1	Own.	L.	H.	P.	Pr.	G	Bijur-2	6	Remy	⅞	Rayfld.	V.	P.	Amid	3	Own	Sp.B.	Springs.	F.	Own	Springs.	130	34x4	SS.	Wd.	¾ Ell.	VanS.	4	R.	R.	R.
Apperson 8-18	2550	8	3½x5	33.8	331.8	4.64-1	Own.	L.	H.	T.	Pr.	G	Bijur-2	6	Remy	⅞	Johnson	V.	P.	Amid	3	Own	Sp.B.	Springs.	F.	Own	Springs.	130	35x4½	SS.	Wd.	Ell.	Van S.	3	R.	R.	R.
Auburn 6-39	1295	6	3½x4½	23.4	230.1	4.42-1	Cont.	L.	H.	P.	Cir-Sp.	P.	Remy-2	6	Remy	⅞	Rayfld.	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	¾ F.	Clumba.	Tor.A.	120	34x4	SS.	Wd.	S-E.	Stewart.	3	BP.	R.	B.
Auburn 6-44	1635	6	3½x5½	29.4	303.1	4.00-1	Cont.	L.	H.	P.	Cir-Sp.	P.	Delco-1	6	Delco	⅞	Rayfld.	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	F.	Clumba	Tor.A.	131	35x4½	SS.	Wd.	Cant.	Stewart.	3	B.	R.	B.
Austin 3750	3750	12	2½x5	39.7	389.5	3.75-1	Widly	L.	H.	P.	Pr.	G.	Delco-2	6	Delco	⅞	Stmbg.	V.	D.	Unit M.	6	Muncie	Sp.B.	Springs.	F.	Own	Springs.	142½	34x4½	QD.	Wd.	DCant	Warner.	4	B.	BR.	R.
Bell 17	895	4	3½x5	19.6	192.4	4.25-1	Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	A.Kent.	⅞	Zenith	V.	D.	Unit M.	3	Covert	Bevl.	Springs.	¾ F.	Adams	Springs.	112	31x4		Wd.	¾ Ell.	Stewart.	2	R.	R.	B.
Ben Hur 1875	1875	6	3½x5½	29.4	303.1	4.45	Buda	L.	H.	P.	Spl-Pr.		West-2		Bosch	⅞		V.	P.	Unit M.	3		Sp.B.		F.	Timken		126	35x4½		Wd.	S-E		4	B.	R.	R.
Biddle D	2275	4	3½x5½	22.5	226.4	4.00-1	Buda	L.	H.	T.	Cir-Sp.	G.	G&D-2	6	Dixie	⅞	Zenith	V.	P.	Unit M.	4		Bevl.	Springs.	¾ F.	Special	Springs.	122	32x4	QD.	Wr.	¾ Ell.	Warner.	3	B.	BR.	B.
Bour-Davis 1385	1385	6	3½x4½	25.3	224.0	4.42-1	Cont.	L.	S.	P.	Sp-Pr.	P.	G&D	6	Remy	⅞	Stmbg.	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	32x4	QD.	Opt.	S-E.	Warner.	3	BP.	BR.	B.
Bour-Davis 1785	1785	6	3½x5½	29.4	303.0	5.00-1	Cont.	L.	S.	P.	Sp-Pr.	P.	West.	6	Remy	⅞	Stmbg.	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	33x4½	QD.	Opt.	S-E.	Warner.	3	BP.	BR.	B.
Brewster Chassis	5500	4	4 x5½	25.6	276.5	4.50-1	Own.	I.	C.	P.	Pr.	G.	U.'SL.	12	Bosch	⅞	Zenith	V.	C.	Unit T.	3	Own	Sp.B.	Tor.T.	F.	Own	Tor.T.	125	34x4½	SS.	Wd.	Cant.	Stewart.	3	Brp.	B.	R.
Briscoe B-4-24	725	4	3⅛x5½	16.3	163.5	4.23-1	Own.	L.	H.	T.	Cir-Sp.	T.	A-Lite	6	Conn	⅞	Buick	G.	C.	Unit X.	3	Own	Bevl.	Tor.A.	S-F.	Own	Tor.R.	104	30x3½	C.	Wd.	Ell.	Stewart.	2	Brp.	BR.	B.
Buick D-34, D-35	795	4	3¾x4¾	18.2	170.0	4.08-1	Own.	I.	H.	P.	Cir-Sp.	P.	Delco-1	6	Delco	⅞	Marvel.	V.	DD	Unit M.	3	Own	Bevl.	Springs.	F.	West-M.	Tor.T.	106	31x4	C.	Wd.	S-E.	Stewart.	3	BR.	BR.	B.
Buick D-44-47	1265	6	3¾x4½	27.3	241.6	4.08-1	Own.	I.	H.	P.	Cir-Sp.	G.	Delco	6	Delco	⅞	Marvel.	V.	DD	Unit M.	3	Own	Sp.B.	Tor.A.	F.	West-M.	Tor.T.	115	34x4	SS.	Wd.	Cant.	Stewart.	4	B.	BR.	B.
Buick E-49	1495	6	3¾x4½	27.3	241.6	4.25-1	Own.	I.	H.	P.	Sp.	G.	Delco	6	Delco		Marvel.	V.	P.	Unit M.	3	Own	Sp.B.	Tor.A.	F.	West-M.	Tor.T.	124	34x4½	SS.	Wd.	Cant.		4	B.	RB.	B.
Cadillac 57	2805	8	3½x5½	31.2	314.4	4.43-1	Own.	L.	C.	P.	Pr.	G.	Delco-1	6	Delco	⅞	Own	P.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Timken	Tor.R.	125 132	35x5	SS.	Wd.	Plat.		3	R.	R.	R.
Cameron 1250	1250	6	3 x5	21.6	212.0	4.00-1	Amco	L.	H.	P.	Sp-Pr.	P.	G&D-2	6	G&D	⅞	Zenith	V.	P.	Unit X.	3	Own	Sp.B.	Rad.Rd.	¾ F.	Own	Tor.T.	122	32x4		Wr.	Cant.		3	B.	B.	B.
Case T-17	1190	4	3¾x6	21	247.7	4.40-1	Own.	L.	H.	T.	Pr.	G.	A-Lite-2	6	Conn	⅞	Rayfld.	G.	C.	Unit M.	3	Own	Sp.B.	Tor.T.	¾ F.	Salsbry.	Tor.T.	120	34x4	SS.	Wd.	Cant.	Stewart.	3	RP.	R.	R.
Case U	1875	6	3½x5½	29.4	303.1	4.55-1	Cont.	L.	H.	P.	Sp-Pr.	G.	West.	6	West.	⅞	Rayfld.	V.	D.	Unit M.	3	G-Lees	Sp.B.	Springs.	¾ F.	Clumba	Springs.	125	35x4½		Wd.		Stewart.	3	B.	R.	R.
Chalmers 6-30	1365 1450	6	3½x4½	25.3	224.0	4.75-1 5.18-1	Own.	L.	C.	T.	Sp-Pr.	G.	West-2	6	Remy	⅞	Stmbg.	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Timken	Springs.	117 122	32x4 34x4	SS.	Wd.	S-E.	Stewart	3	R.	R.	R.
Chandler 17	1595	6	3½x5	29.4	288.4	4.40-1	Own.	L.	C.	P.	Cir-Sp.	P.	G&D-2	6	Bosch		Rayfld.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.T.	123	34x4	SS.	Wd.	S-E.	Warner.	3	B.	R.	R.
Chevrolet 490	635	4	3½x4	21.7	170.9	3.67-1	Own.	I.	H.	P.	Sp-Pr.	G.	A-Lite-2	6	Remy	⅞	Zenith	G.	C.	Unit M.	3	G-Lees	Bevl.	Springs.	¾ F.	Own	Springs.	102	30x3½	C.	Wd.	Cant.	Stewart.	3	B.	R.	B.
Chevrolet FA	935	4	3½x5½	21.7	170.9	4.25-1	Own.	I.	H.	P.	Sp-Pr.	G.	A-Lite-2	6	Remy	⅞	Zenith	V.	C.	Unit M.	3	Warner	Bevl.	Springs.	¾ F.	Own	Springs.	108	33x4	SS.	Wd.	Cant.	Stewart.	3	BP.	R.	B.
Chevrolet D	1385	8	3¾x4	36.5	286.3	4.25-1	Own.	I.	H.	P.	Cir-Sp.	G.	A-Lite-2	6	Remy	⅞	Zenith	V.	C.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Own	Tor.T.	120	34x4	SS.	Wd.	Cant.	Stewart.	3	BP.	R.	B.
Cole 8-60	1995	8	3½x4½	39.2	346.4	4.45-1	North.	L.	S.	P.	Pr.	G.	Delco-2	6	Delco	⅞	Stmbg.	V.	C.	Unit M.	3	Own	Sp.B.	Springs.	F.	Clumba	Springs.	127	35x4½	SS.	Wd.	S-E.	Warner.	3	BP.	R.	R.
Columbia 1295	1295	6	3½x4½	25.3	224	4.75	Cont.	L.	H.	P.	Sp-Pr.	P.	W-Lnr-2	6	A.Kent.	¾	Stmbg.	V.	P.	Unit M.	3	Warner	Sp.B.	Springs.	S.F.	Timken	Tor.A.	115	32x4	SS.	Wd.	Cant.	Stewart.	3	B.	R.	R.
Comet 6-50	1285	6	3½x5	29.4	289	4.50-1	Lewis	L.	H.	P.	Sp-Pr.		Dynto	6	Delco		Miller	V.	DD	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	W-Weiss	Tor.A.	125	33x4		Wd.	Cant.	Stewart.	3	B.	R.	R.
Commonwealth Ultra 4-40	995	4	3½x5	19.6	192.4	4.00-1	Lycmg.	L.	H.	T.	Cir-Sp.	G.	Dynto-2	6	A.Kent.	⅞	Carter	V.	D.	Unit M.	3	Mech.	Bevl.	Springs.	F.	Peru	Springs.	112	32x3½	SS.	Wd.	½ Ell.	VanS.	2	B.	R.	B.
Crawford 2250	2250	6	3½x5½	29.4	303.1	4.50	Cont.	L.	H.	P.	Cir-Sp.		West-2		Bosch	⅞	Stmbg.			Unit M.	3		Sp.B.		¾ F.	Timken		122½	32x4		Wd.	S-E.		3	R.	R.	R.
Crow-Elkhart CE-33-35	935	4	3½x5	19.6	192.4	4.25-1	Own.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	Conn	⅞	Zenith	G.	P.	Unit M.	3	Own	Bevl.	Tor.T.	F.	Peru	Tor.T.	114½	32x3½	SS.	Opt.	½ Ell.	Stewart.	2	B.	R.	B.
Cunningham V	4250 4750	8	3½x5	45	441.7	4.08-1	Own.	L.	H.	P.	Pr.	G.	West-2	6	West.	⅞	Stmbg.	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	F.	Timken	Tor.T.	132 142	35x5	Opt.	Opt.	½ Ell.	Warner.	3	R.	R.	R.
Daniels B	3100	8	3½x5	33.8	331.8	4.45-1	Her-Sp.	L.	H.	P.	Pr.	G.	West-2	6	West.	⅞	Zenith	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	¾ F.	Timken	Tor.A.	127	34x4½	QDR	Wd.	S-E.	Warner.	3	BR.	R.	R.
Davis H-I	1485	6	3½x4½	25.3	224.0	4.42-1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2	6	Delco	⅞	Stmbg.	V.	C.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Clumba	Springs.	119	34x4		Wd.	S-E.	Stewart.	3	B.	R.	B.
Davis J	1785	6	3½x5½	29.4	303.1	4.42-1	Cont.	L.	H.	P.	Sp-Pr.	G.	Delco-2	6	Delco	⅞	Stmbg.	V.	C.	Unit M.	3	Warner	Sp.B.	Springs.	F.	Clumba	Springs.	124	34x4½		Wd.	S-E.	Stewart.	3	B.	R.	R.
Detroiter Six-45	1395	6	3½x4½	25.3	224.0	4.75-1	Cont.	L.	H.	P.	Sp-Pr.	P.	A-Lite	7	Conn	⅞	Ball	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	S-F.	Timken	Springs.	119	33x4	SS.	Wd.	S-E.	Stewart.	3	BP.	R.	R.
Dispatch G	1250	4	3½x5	22.5	220.9	4.00-1	Wis.	L.	H.	T.	Pr.	G.	USL.-1	12	Bosch	½	Rayfld.	V.	CU	Amid	4	Own	Int.C.	Rad.Rd.	D.	Own	Rad.Rd.	120	36x3½	QD.	Wd.	Ell.	Corbin	3	B.	B.	B.
Dixie Flyer LS-35	895	4	3½x5	16.9	165.9	4.75-1	Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	Conn	⅞	Carter	V.	D.	Unit M.	3	G-Lees	Sp.B.	Tor.T.	F.	Peru	Tor.T.	112	32x3½	SS.	Wd.	½ Ell.	VanS.	2	Brp.	BR.	B.
Deble Steamer 2500	2500	2	5 x4		314.0	1.25-1	Own.			P.	Sp-Pr.	P.	Wagnr-2	12	Doble	⅞		P.							Springs.	S-F.	Americ'n	Tor.A.	135	35x5		Wd.	S-E.	Waltham	2	B.	B.	B.
Dodge 885	885	4	3¼x4½	24	212.3	4.16-1	Own.	L.	H.	P.	Cir-Sp.	I.	N-East-1	12	Delco	⅞	Stewart.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.T.	114	32x3½	SS.	Wd.	¾ Ell.	J-M	3	B.	R.	R.
Derris 1-C-6 2785	2785	6	4 x5	38.4	377.0	4.08-1	Own.	I.	H.	P.	Pr.	G.	West-2	6	Bosch	⅞	Stmbg.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Timken	Tor.T.	130	36x4½	SS.	Wd.	Plat.	Warner.	7	R.	R.	R.
Dort 9	725	4	3½x5	16.9	165.9	4.07-1	Own.	L.	H.	T.	Cir-Sp.	P.	West-2	6	Conn	⅞	Carter	G.	C.	Unit M.	3	Mech	Bevl.	Springs.	¾ F.	W-Weiss	Tor.T.	105	30x3½	QD.	Wd.	Cant.	Stewart.	2	B.	Brp.	B.
Elcar D.E.F.	845	4	3½x5	19.6	192.4	4.08-1	Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	Delco	⅞	Carter	V.	P.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Salsbry.	Springs.	115	32x3½	SS.	Opt.	S-E.	Stewart.	2	BP.	BR.	B.
Elgin 1095	1095	6	3 x4½	21.6	180.2	4.50-1	Falls	I.	H.	T.	Cir-Sp.	P.	Wagnr-2	6	Remy	⅞	Stmbg.	V.	P.	Unit M.	3		Sp.B.	Springs.	F.	Adams	Tor.A.	117	33x4			Cant.	Stewart.	3	B.	B.	R.
Empire 50-51 1165	1165	4	3½x5	24	235.8	4.00-1	Teetor	T.	H.	T.	Cir-Sp.		A-Lite-2	6	Conn	⅞	Stmbg.	V.	D.	Unit M.	3	Mechs	Bevl.	Springs.	S-F.	Peru	Tor.T.	115	33x4	SS.	Wd.	S-E.	Stewart.	3	BP.	R.	B.
Empire 70A-71 1345	1345	6	3½x4½	25.6	224.0	4.58-1	Cont.	L.	H.	P.	Sp-Pr.		A-Lite-2	6	Conn	⅞	Stmbg.	V.	C.	Unit M.	3	Mechs	Sp.B.	Springs.	S-F.	Hess	Springs.	120	34x4	SS.	Wd.	S-E.	Stewart.	3	BP.	BR.	B.
Fiat 55-E-17	5500	4	5½x6½	42	557.0	2.75-1	Own.	L.	H.	P.	Pr.	G.	West-2	6	Bosch	⅞	Zen.Sp.	P.	D.	Amid	4	Own	Bevl.	Tor.T.	F.	Own	Tor.T.	140	35x5	QD.	Wd.	S-E.	Warner.	3	B.	B.	B.
Ford T	360	4	3¾x4	22.5	176.7	3.63-1	Own.	L.	S.	T.	Sp-Gr.		Own	12	Own	½	Hol-Knig	G.	D.	Unit M.	2	Own	Bevl.	Tor.T.	S-F.	Own	Tor.T.	100	30x3½	C.	Wd.	Trans.	None	3	P.	R.	B.

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PASSENGER CARS—Continued

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	GEARSET Forward Speeds	GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tire	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	BEARINGS Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Nash {681	1295	6	3½x5	25.35	249.0	4.50-1	Own	I.	G.	P.	Cir-Sp	G.	Delco	6	Delco	⅞	Marvel	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Own	Springs.	121	34x4	SS	Wd.	S-E	Stewart.	3	R	R	R
Nash 684}	1295	6	3½x5	25.35	249.0	4.50-1	Own	I.	G.	P.	Cir-Sp	G.	Delco	6	Delco	⅞	Marvel	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Own	Springs.	128	34x4	SS	Wd.	S-E	Stewart.	3	R	R	R
National 6	1995	6	3½x5½	33.8	347.9	3.75-1	Cont	L.	H.	P.	Sp-Pr	P.	West-2.	6	Dixie	⅞	Rayfld.	V.	C.	Unit M.	3	Own	Sp.B.	Springs.	F.	Clumba.	Tor.R.	128	34x4½	QDR	Wd.	Cant.	Warner.	3	B	R	R
National 12	2595	12	2½x4½	39.7	4.58-1	5.00-1	Own	L.	H.	P.	Pr	G.	Bijur-2.	6	Delco	⅞	Rayfld.	V.	C.	Unit M.	3	Own	Sp.B.	Springs.	F.	Clumba.	Tor.R.	128	34x4½	QDR	Wd.	Cant.	Warner.	3	B	R	R
Nelson	1400	4	3½x4½	15.6	145.7	4.25	Own	I.	B.	T.	Cir-Sp	G.	U.S.L.-1.	12	Bosch	⅞	Zenith	D.	Unit M.	3	Own	Sp.B.	Sub-Fr.	F.	Own		104	32x4		Wd.	S-E	Stewart.	2	BR.	BR.	B
Oakland 34-B	990	6	2 13/16x4½	19	177.0	4.50-1	North	I.	H.	P.	Pr	P.	Remy-2.	6	Remy	⅞	Marvel	V.	C.	Unit M.	3	Warner	Bevel	Springs.	F.	West.M.	Springs.	112	32x4	SS	Wd.	S-E	Stewart.	3	B	R	B
Ogren 102		6	3½x5½	33.8	347.9	3.75-1	Cont	L.		P.	Pr	G.	West-1.	6	Bosch	⅞	Rayfld.	V.	D.	Unit M.	3	Muncie	Bevel	Springs.	F.	Timken.	Springs.	132	34x4½		Wr.	S-E	Stewart.		R		R
Oldsmobile 37	1185	6	2 13/16x4½	18.9	177.0	4.52-1	North	I.	H.	P.	Pr	G.	Delco-2.	6	Delco	⅞	Johnsn.	V.	C.	Unit M.	3	Own	Sp.B.	Springs.	F.	West.M.	Springs.	112	32x4	SS	Wd.	S-E	Stewart.	3	BR.	BR.	R
Oldsmobile 45	1467	8	2½x4½	26.4	246.7	4.92-1	North	L.	H.	P.	Pr	G.	Delco-2.	6	Delco	⅞	Johnsn.	V.	C.	Unit M.	3		Sp.B.	Springs.	F.	West.M.	Springs.	120	34x4	SS	Wd.	¾ Ell.	Stewart.	2	BR.	BR.	R
Olympian	965	4	3½x4½	22.5	187.7	4.08-1			C.	T.			A-Lite-2.	6	Conn		Carter	V.	D.		3			Springs.	F.		Springs.	114	32x3½		Wd.			3	B	R	B
Overland 90	795	4	3½x5	18.2	178.9	3.75-1	Own	L.	H.	T.	Cir-Sp	P.	A-Lite-2.	6	Conn	⅞	Tilltsn	V.	C.	Unit X.	3	Own	Bevel	Tor.T.	¾ F.	Own	Tor.T.	106	31x4	C	Wd.	Cant.	Stewart.	2	BR	BR	R
Overland 85-B-4	930	4	4½x4½	27.2	240.5	4.00-1	Own	L.	H.	T.	Cir-Sp	G.	A-Lite-2.	6	Conn	⅞	Tilltsn	V.	C.	Unit X.	3	Own	Bevel	Tor.T.	¾ F.	Own	Tor.T.	112	32x4	SS	Wd.	Cant.	Stewart.	5	BR.	BR	R
Owen Magnetic M-25	3300	6	3½x5½	29.4	303.1	4.08-1	Cont	L.	H.	P.	Sp-Pr	P.	Own	14	Bosch	⅞	Zenith	V.	Om		6		Sp.B.	Springs.	¾ F.	Timken.	Springs.	125	34x4½	SS	Wd.	S-E	Warner.	3		R	R
Owen Magnetic O-36	3950	6	3½x5½	33.6	364.5	3.50-1	Buda	L.	H.	P.	Sp-Pr	G.	Own	28	Bosch	⅞	Zenith	V.	Om		6		Sp.B.	Springs.	F.	Amer	Tor.T.	136	35x5	SS	Wr.	S-E	Warner.	4		R	R
Packard {3-25	3700	12	3 x5	43.2	424.1	4.36-1	Own	L.	C.	P.	Pr	G.	Bijur-2.	6	Delco	⅞	Own	P.	D.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Own	Tor.A.	128	35x5	QD.	Wd.	S-E	Walthm.	3	B	R	R
Packard 3-35}	4100	12	3 x5	43.2	424.1	4.36-1	Own	L.	C.	P.	Pr	G.	Bijur-2.	6	Delco	⅞	Own	P.	D.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Own	Tor.A.	136	35x5	QD.	Wd.	S-E	Walthm.	3	B	R	R
Paige 6-39	1330	6	3½x5½	23.4	230.1	4.41-1	Rutnbr	L.	H.	P.	Sp-Pr	P.	G&D-2.	6	Remy	⅞	Stmbg	G.	D.	Unit M.	3	Own	Sp.B.	Tor.T.	¾ F.	Salsbry.	Tor.T.	117	32x4	SS	Wd.	Cant.	Stewart.	3	BR	BR	B
Paige 6-55	1775	6	3½x5½	29.4	303.1	4.35-1	Cont	L.	H.	P.	Sp-Pr	P.	Remy-2.	6	Remy	⅞	Rayfld	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	¾ F.	Salsbry.	Tor.T.	127	35x4½	SS	Wd.	Cant.	Stewart.	3	BR	BR	B
Pan-American	1500	6	3½x5	23.4	230.0	4.45-1	Rutnbr	L.	H.	P.	Sp-Pr	P.	G&D	6	G&D	⅞	Rayfld	V.	D.	Unit M.	3	Warner	Sp.B.	Springs.	S-F.	Timken.	Springs.	120	33x4½	SS	Wd.	S-E	Stewart.	3	B	R	B
Paterson 6-45	1295	6	3½x4½	25.4	224.0	4.50-1	Cont	L.	H.	P.	Sp-Pr	P.	Delco	6	Delco	⅞ L	Stmbg	V.	C.	Unit M.	3	Detroit	Sp.B.	Springs.	F.	Hess	Springs.	117	32x4	C	Wd.	¾ Ell.	Stewart.	3	B	R	B
Peerless 56	2340	8	3½x5	33.8	331.8	4.90-1	Own	L.	H.	P.	Pr	G.	A-Lite-2.	6	A.Kent	⅞	Ball	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	S-F.	Timken.	Springs.	125	35x4½	SS	Wd.	Plat.	Warner.	3	BR.	R	R
Pierce-Arrow 38-C-4	4800	6	4 x5½	38.4	414.7	3.78-1	Own	T.	H.	P.	Pr	G.	West-2.	6	Bosch	⅞	Own	P.	C.	Amid	4	Own	Sp.B.	Springs.	S-F.	Own	Tor.A.	134	34x4½	QD.	Wd.	¾ Ell.	Stewart.	7	BP.	BR	R
Pierce-Arrow 48-B 4	5500	6	4½x5½	48.6	524.8	3.53-1	Own	T.	H.	P.	Pr	G.	West-2.	6	Bosch	⅞	Own	P.	C.	Amid	4		Sp.B.	Springs.	S-F.	Own	Tor.A.	142	35x5	QD.	Wd.	¾ Ell.	Stewart.	7	BP.	BR	R
Pierce-Arrow 66-A-4	6500	6	5 x7	60	824.7	2.88-1	Own	T.	H.	P.	Pr	G.	West-2.	6	Bosch	⅞	Own	P.	C.	Amid	4		Sp.B.	Springs.	S-F.	Own	Tor.A.	147½	36x5½	QD.	Wd.	¾ Ell.	Stewart.	7	BP.	BR	R
Pilot 6-45	1295	6	3½x5	23.4	230.1	4.25-1	Teetor	L.	H.	P.	Sp-Pr	P.	Delco-2.	6	Delco	⅞	Tiltsn	V.	P.	Unit M.	3	Muncie	Sp.B.	Springs.	F.	Hess	Tor.A.	120	32x4	SS	Wd.	Cant.	Stewart.	3	B	BR	R
Premier 6-B	2285	6	3⅞x5½	27.3	295.3	4.45-1	Own	I.	H.	P.	Sp-Pr	G.	Delco-2.	6	Delco	⅞	Johnson	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	S-F.	Timken.	Springs.	125½	35x4½	SS	Wd.	S-E	Warner.	3	BP.	R	R
Princess 4-36-F	825	4	3½x4¼	22.5	187.7	4.25-1	G.B.&S.	L.	C.	T.	Cir-Sp	P.	Disco-2.	6	Splitdrf	⅞	Schblr	V.	D.	Unit M.	3	G-Lees	Sp.B.	Springs.	F.	Own	Springs.	108	32x3½		Wd.	¾ Ell.	VanS	3	BR	BR	B
Regal 4-32	795	4	3½x4¾	19.6	182.8	4.25-1	Own	L.	H.	T.	Cir-Sp	P.	A-Lite	6	A.Kent	½	Carter	V.	C.	Unit M.	3	G-Lees	Bevel	Tor.T.	F.	Peru	Tor.T.	108	30x3½	QD.	Wd.	Cant.	Stewart.	3	B	R	B
Reo R	985	4	4½x4½	27.2	240.5	4.30-1	Own	L.	H.	P.	Cir-Sp	P.	Remy-2.	6	Remy	½ L	Johnson	G.	D.	Amid	3	Own	Sp.B.	Springs.	S-F.	Own	Tor.A.	115	34x4	SS	Wd.	¾ Ell.	Stewart.	3	R	R	R
Reo M	1385	6	3 7/16x5½	30.4	306.6	4.30-1	Own	L.	H.	P.	Cir-Sp	P.	Remy-2.	6	Remy	½ L	Rayfld	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.A.	126	34x4½	SS	Wd.	Cant.	Stewart.	3	R	R	R
Roamer	1950	6	3½x5	23.4	230.1	4.42-1	Rutnbr	L.	H.	P.	Sp-Pr	G.	Bijur-2.	6	Bosch	⅞	Stmbg	V.	DD	Unit M.	3		Sp.B.	Springs.	¾ F.	Hess	Springs.	127	34x4	SS	Wr.	S-E	Warner.	3	B	B	B
Saxon B-5-R	395	4	2¾x4	12.1	94.0	5.00-1	Cont	L.	H.	T.	Cir-Sp	P.	Wagnr-2	6	A.Kent	⅞	Schblr	G.	D.	Unit X.	3		Bevel	Tor.T.	S-F.	Timken.	Tor.T.	96	30x3	QD.	Wd.	Cant.	Stndrd	3	RP	BR	B
Saxon S-4	935	6	2¾x4½	19.8	175.3	4.75-1	Cont	L.	H.	T.	Cir-Sp	P.	Wagnr-2	6	Remy	⅞	Stmbg	G.	D.	Unit X.	3		Sp.B.	Tor.T.	S-F.	Timken.	Tor.T.	112	32x3½	SS	Wd.	Cant.	Stewart.	3	RP	R	R
Sayers Six	1295	6	3½x4½	25.3	224.0		Cont						Delco	6	Delco			V.	D.				Sp.B.	Springs.	F.				32x4	SS					BR		
Scripps-Booth G	1250	4	3½x4	21.7	170.9	3.7-1	Mason	I.	H.	P.	Cir-Sp	G.	Remy	6	Remy	⅞	Zenith	V.	C.	Unit M.	3	Warner	Bevel	Springs.	¾ F.	W.W	Tor.A.	110	30x3½	SS	Wr.	Cant.	Stewart.	3	BP.	BR	B
Scripps-Booth D	1425	8	2¾x3½	22.1	162.3	4.80-1	Ferro	I.	H.	T.	Pr	G.	Wagnr-2.	6	Remy	⅞	Zenith	V.	D.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Russell	Tor.A.	120	32x4	C	Wr.	Cant.	Stewart.	2	BP.	BR	B
Simplex	7000	6	4¾x6½	45.9	563.7		Own	L.	C.	P.	Pr	G.	Bosch-2.	12	Eisnn	⅞	Newcmb	P.	D.	Unit M.	4	Own	Sp.B.	Springs.	F.	Own	Springs.	143½	37x5½	QD.	Wd.	S-E		3	B.	B.	R
Singer 17	3800	6	4 x5½	38.4	414.7	3.77-1	Her-Sp	T.	H.	P.	Pr	G.	West-1.	6	Bosch	⅞	Rayfld	V.	DD	Unit M.	4	Muncie	Sp.B.	Springs.	F.	Timken.	Tor.A.	138	35x5	QD.	Wr.	Cant.	Warner.	3	B.	R	R
Standard C	2450	8	3½x5	33.8	331.8	4.45-1	Her-Sp	L.	H.	P.	Pr	G.	West-2.	6	Splitdrf	⅞	Zenith	V.	D.	Unit M.	3	G-Lees	Sp.B.	Springs.	S-F.	Timken.	Springs.	127	34x4½		Wd.	S-E	Stewart.	3	BR	Brp	R
Stanley Steamer	2200	2	4 x5			1.5 -1																		Springs.		Timken.		130	35x4½	SS		Ell	Stewart.				
Stearns SKL4-32	1785	4	3½x5⅛	22.5	248.5	4.50-1	Own	I.	C.	P.	Sp-Pr	G.	West-2.	12	Remy	⅞	Schblr	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Own	Springs.	119	34x4	QD.	Opt.	Cant.	Stewart.	3	BR.	BR	B
Stearns SK8-33	2575	8	3½x5	33.8	331.8	4.75-1	Own	I.	C.	T.	Sp-Pr	G.	West-2.	12	Remy	⅞	Rayfld	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Own	Springs.	125	35x4½	QD.	Opt.	Cant.	Stewart.	3	BR.	BR	BR
Stephens Salient Six	1485	6	3½x4½	25.3	224.0	4.75-1	Own	I.	H.	T.	Pr	G.	Delco	6	Delco	½	Stmbg	V.	P.	Unit M.	3	Mech	Bevel	Springs.	F.	Hess	Springs.	117½	32x4		Wd.	S-E	VanS	3	B.	R.	R
Studebaker SF4-40	1050	4	3½x5	24	235.8	4.00-1	Own	L.	H.	P.	Cir-Sp	G.	Wagnr-2	6	Remy	½	Schblr	V.	C.	Unit X.	3	Own	Bevel	Rad.Rd.	F.	Own	Tor.A.	112	34x4	SS	Wd.	¾ Ell.	Stewart.	3	R.	R.	R
Studebaker ED6-50	1385	6	3½x5	36.3	353.8	3.70-1	Own	L.	H.	P.	Cir-Sp	G.	Wagnr-2	6	Remy	½	Schblr	V.	C.	Unit X.	3	Own	Bevel	Rad.Rd.	F.	Own	Tor.A.	122	35x4½	SS	Wd.	¾ Ell.	Stewart.	4	R.	R.	R
Stutz 2750}		4	4¾x6	30.6	360.8	3.50-1	Own	T.	H.	P.	Pr		Remy-2.	8	Bosch	⅞	Stmbg	P.	C.	Unit X.	3	Own	Bevel	Tor.T.	¾ F.	Own	Rad.Rd.	130	32x4½	SS	Wr.	S-E	Warner.	3	B.	R	B
Stutz Bearcat 2550}		4	4¾x6	30.6	360.8	3.50-1	Own	T.	H.	P.	Pr		Remy-2.	8	Bosch	⅞	Stmbg	P.	C.	Unit X.	3	Own	Bevel	Tor.T.	¾ F.	Own	Rad.Rd.	120	32x4½	SS	Wr.	S-E	Warner.	3	B.	R	B
Velie 38	1265	6	3½x4½	25.3	224.0	4.33-1	Cont	L.	H.	P.	Sp-Pr	P.	Remy-2.	6	Remy	⅞	Rayfld	V.	P.	Unit M.	3	Durstn	Sp.B.	Springs.	S-F.	Timken.	Springs.	115	32x4	SS	Opt.	¾ Ell.	Stewart.	3	BP.	R	R
Velie 39	1595	6	3½x5¼	29.4	303.1	4.08-1	Cont	L.	H.	P.	Sp-Pr	P.	Remy-2.	6	Remy	⅞	Rayfld	V.	P.	Unit M.	4	Muncie	Sp.B.	Springs.	S-F.	Timken.	Springs.	124	33x4½	SS	Opt.	¾ Ell.	Stewart.	3	BR.	R	R
Westcott S-18	1940	6	3½x5½	29.4	303.1	4.45-1	Cont	L.	H.	P.	Sp-Pr	P.	Delco-2.	6	Delco	⅞	Rayfld	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	S-F.	Timken.	Tor.T.	125	35x4½	SS	Wd.	Cant.	Warner.	3	BR.	R	R
White 16 Valve Four	4600	4	4¼x5¾	28.9	326.3		Own	T.	H.	P.	Pr	G.	Lee-N-2.	12	Bosch	⅞	Own	V.	P.	Unit M.	4	Own	Sp.B.	Springs.	S-F.	Own	Tor.T.	137½ 124½	37x5 33x4½		Wd.	S-E		3	B.	B.	B
Willys-Knight 88-4	1525	4	4½x4½	27.2	240.5	4.30-1	Own	I.	C.	T.	Sp-Pr	P.	A-Lite-2.	6	Conn	⅞	Tiltsn	V.	C.	Unit X.	3	Own	Sp.B.	Tor.T.	F.	Own	Tor.T.	121	34x4½	SS	Wd.	Cant.	Stewart.	3	BR.	R	R
Willys-Knight 88-8	2000	8	3½x4	36.4	286.3	4.60-1	Own	I.	C.	T.	Pr	P.	A-Lite-2.	6	Remy	⅞	Zenith	V.	C.	Unit X.	3	Own	Sp.B.	Tor.T.	F.	Own	Tor.T.	125	34x4½	SS	Wd.	Cant.	Stewart.	2	BR.	R	R
Willys 89	1365	6	3½x5½	29.4	303.1	4.00-1	Cont	L.	H.	P.	Pr	G.	A-Lite-2.	6	Conn	⅞	Tilltsn	V.	C.	Unit X.	3	Own	Sp.B.	Tor.T.	¾ F.	Own	Tor.T.	120	33x4	SS	Wd.	Cant.	Stewart.	3	BR.	BR	R
Winton 33	2950	6	3½x5½	33.7	347.9	4.45-1	Own	L.	C.	P.	Pr	P.	Bijur-2.	6	Bosch	⅞	Rayfld	V.	D.	Unit M.	4	Own	Sp.B.	Springs.	F.	Own	Tor.T.	128	36x4½	QD.	Wd.	¾ Ell.	Warner.	4	BR.	R	R
Winton 48	3500	6	4½x5½	48.6	524.8	4.08-1	Own	L.	C.	P.	Pr	P.	Bijur-2.	6	Bosch	⅞	Rayfld	V.	D.	Unit M.	4	Own	Sp.B.	Springs.	F.	Own	Tor.T.	138	37x5	QD.	Wd.	¾ Ell.	Warner.	4	BR.	R	R
Woods 54	2950	4	2¾x4	12.1	95.0	8.25-1	Cont	L.	H.	T.	Sp-Pr	P.		48	A-Kent	⅞	Stmbg	G.	M.				Worm	Springs.	S-F.	Own	Tor.A.	124	35x4½	QD.	Wd.	Cant.	Stewart.	3		B	R
Yale K	1650	8	3½x4½	31.3	276.1	4.45-1	Mas-Ph	L.	C.	T.	Cir-Sp		Disco	6	Remy	⅞	Rayfld	V.	D.	Unit M.	3	Muncie	Bevel	Springs.	S-F.	Timken.	Springs.	126			Wd.	¾ Ell.	Stewart.	2	B.	R.	R
Yale M	1885	8	3 x5	28.8	282.8	4.45-1	Colonial	L.	C.	T.	Cir-Sp		Dynto	6	Remy	⅞	Zenith	V.	D.	Unit M.	3	Detroit	Sp.B.	Springs.	S.F.	Timken.	Springs.	126			Wd.	S-E	Stewart.	2	B.	R.	R

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MOTOR WORLD GUIDE

Lamp Bulbs

Car	HEAD LAMPS Volt	HEAD LAMPS Cp.	SIDE LAMPS Volt	SIDE LAMPS Cp.	TAIL LAMP Volt	TAIL LAMP Cp.	DASH LAMP Volt	DASH LAMP Cp.	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
Abbott-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Allen	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Resist.	
American	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp double.
Anderson	6-8	21	6-8	12H	6-8	4	6-8	4	.....	E.S.	S.	.....	
Apperson	6-8	18	.....	.....	6-8	2	6-8	2	10	E.D.	D.	Resist.	
Arbenz	6-8	15	6-8	6	6-8	2	6-8	2	25	E.S.	S.	.....	
Auburn 39 B	6-8	15	6-8	4	6-8	2	6-8	2	25	E.S.	S.	.....	Dash Ediswan D.
Auburn 44	6-8	18	6-8	12	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Austin	6-8	24	6-8	4H	6-8	4	.....	.....	.....	E.S.	S.	.....	
Bell	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	Dash Ediswan D.
Biddle	6-8	21	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Bimel D	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	.....	.....	
Bimel	12-16	15	.....	.....	12-16	2	12-16	2	.....	E.S.	.....	.....	Other models.
Brewster	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Briscoe	6-8	21	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Resist.	Dash Ediswan D.
Bour Davis	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	.....	.....	
Buick	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	
Cadillac	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	E.S.	S.	.....	
Case	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chalmers	6-8	15	6-8	4H	6-8	2	6-8	2	(30)(15)	.....	S.	.....	
Chandler	6-8	16	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chevrolet	6-8	12	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
Cole	6-8	21	6-8	2H	3-4	2	3-4	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Columbia	6-8	15	6-8	4	6-8	2	6-8	2	None	E.S.	S.	.....	Dash Ediswan D.
Commonwealth	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Crawford	6-8	15	6-8	4H	6-8	4	6-8	2	15	E.S.	S.	.....	Dash lamp Ediswan D.
Crow-Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	10	E.D.	S.	Series.	Dash lamp Ediswan D.
Cunningham	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Warner lens.	Tail lamp Ediswan S.
Daniels	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Davis	6-8	15	.....	.....	6-8	4	6-8	4	.....	E.D.	S.	Warner lens.	Dash lamp Ediswan D.
Detroiter	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
Dispatch	12-16	21	.....	.....	12-16	2	6-8	2	2	E.D.	D.	.....	Two dash lamps.
Dixie	6-8	15	.....	.....	3-4	2	3-4	2	10	E.D.	D.	Resist.	
Doble	12-16	32	.....	.....	6-8	2	6-8	2	None	E.D.	S.	Warner lens.	Dash and tail in Series
Dodge	12-16	15	.....	.....	12-16	2	12-16	2	.....	E.S.	S.	Resist.	
Dorris	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Dort	6-8	15	.....	.....	6-8	4	6-8	2	10	E.S.	S.	Resist.	Dash lamp Ediswan D.
Elgin	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Empire	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp Ediswan D.
Fiat	6-8	15	6-8	4H	6-8	2	6-8	4	.....	E.S.	.....	Warner lens.	Tonneau lamp 6 v. 2 cp.
Ford	6-8	15	.....	.....	.....	.....	.....	.....	.....	E.D.	.....	.....	
Franklin	12-16	21	12-16	4H	6-8	2	6-8 12-16	2 2	10	E.D.	.....	.....	Panel 12-16 v., 2 cp.
Glide	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Grant	6-8	15	6-8	4H	6-8	2	6-8	2	20	.....	S.	Resist.	Dash lamp Ediswan D.
HAL	6-8	18	.....	.....	6-8	2	6-8	4	15	E.S.	.....	Warner lens.	H'dlamps doub., tail and dash single.
Halladay	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Harroun	6	15	.....	.....	3	2	3	2	15	E.S.	S.	Resist.	Dash Ediswan D.
Haynes	6-8	15	6-8	12H	6-8	2	6-8	2	5	E.D.	D.	Series.	
Hollier	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Series.	
Howard	6-8	15	6-8	2H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Hudson	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.S.	S.	Resist.	Dash lamp Ediswan D.
Hupmobile	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Resist.	
Inter-State	6-8	15	.....	.....	6-8	2	6-8	2	10	E.D.	S.	Resist.	
Jackson	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	.....	
Jeffery	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	.....	.....	
Jones	6-8	21	6-8	2	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Jordan	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
King	6-8	18	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	Series.	
Kissel	6-8	18	.....	.....	6-8	2	6-8	2	20	E.D.	S.	Series.	Dash lamp single.
Kline	6-8	15	6-8	4	6-8	2	6-8	2	15	E.S.	S.	.....	Fuses 5 amp. in all but hdlps.
Lewis	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.D.	S.	Resist.	
Lexington 6R	7	30	.....	.....	6	2	6	4	15	E.S.	S.	D. Bulb.	Dash lamp Ediswan D.
	.....	32	.....	.....	.....	.....	.....	.....	5	.....	.....	Hdlamps	Spotlight, 7 v., 21 cp., double contact.
	7	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Liberty	6-8	15	.....	H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Locomobile	6-8	21	6-8	6	6-8	4	6-8	2	10	E.S.	S.	Resist.	Tonneau & Spotlight 6-8v., 2 cp.
McFarlan	6-8	24	6-8	12H	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Madison	6-8	15	6-8	6H	6-8	4	6-8	4	5	E.S.	S.	Series.	Dash lamp Ediswan D.
Maibohm A	12	18	12	4	6	2	6	2	None	E.S.	S.	Resist.	
B	6-8	18	6-8	4	6-8	2	3-4	2	15	E.S.	S.	Resist.	
Marion	6-8	18	6-8	4	6-8	2	6-8	2	30	E.S.	.....	.....	
B	6-8	21	6-8	4	6-8	2	6-8	2	30	E.S.	.....	.....	
Marmon	6-8	24	6-8	8H	6-8	4	6-8	4	20	E.S.	S.	Warner lens.	
Maxwell	12-16	24	12-16	.....	12-16	2	12-16	2	20	E.S.	S.	Resist.	
Mercer	12-16	24	12-16	4	12-16	4	12-16	4	10	E.S.	S.	Clear lens.	
Metz	6-8	15	6-8	4H	6-8	2	6-8	2	50	E.D.	S.	Shad. rays.	
Mitchell	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	Series.	
Moline-Knight	6-8	15	6-8	6H	6-8	2	6-8	4	20	E.S.	S.	Deflect.	
Monroe	6-8	15	6-8	2H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Moon	6-8	15	.....	.....	6-8	2	6-8	4	C.B.	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Murray	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.D.	.....	Warner lens.	Dash and tail Ediswan S. Fuses 5 amp. in dimmer.
Nash	6-8	14	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
National	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.S.	.....	.....	Dash lamp double.
Nelson	6-8	15	6-8	4H	6-8	2	6-8	2	5-30	E.D.	D.	.....	
Oakland 34-B	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	Dash lamp Ediswan S.
Ogren	6-8	12	6-8	6	6-8	6	6-8	6	.....	E.S.	S.	Deflect.	
Oldsmobile	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Olympian	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	
Overland	6-8	16	.....	.....	3-4	2	3-4	2	20	E.D.	S.	Series.	Dash and tail Ediswan S.
Owen O-36	28	21	28	4H	28	2	28	2	10	E.D.	D.	.....	
M-25	14	21	14	4H	14	2	14	2	10	E.D.	.....	.....	Headlamps Ediswan S.
Paige-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Paterson	6-8	12	6-8	8H	.....	.....	.....	.....	.....	.....	.....	.....	Dash lamp Ediswan D.
Packard	6-8	24	6-8	6	6-8	2	6-8	4	10	E.S.	S.	Warner lens.	Aux. headlights, 6 cp.
Pan American	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	D Bulb.	Dash lamp Ediswan D.
Pathfinder	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	Warner lens.	
Peerless	6-8	15	6-8	4	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	
Pierce-Arrow	6-8	21	6-8	4	6-8	4	6-8	4	10	E.S.	S.	Sutterly	
Pilot	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	
Porter	12-16	25	12-16	6	12-16	3	12-16	3	6-3	E.S.	S.	.....	
Premier	6-8	21	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
Regal	6-8	21	.....	.....	6-8	4	6-8	2	.....	E.S.	S.	Resist.	
Reo	6-8	15	.....	.....	3-4	2	3-4	2	5	E.D.	D.	Series.	
Ross	6-8	15	.....	.....	6-8	4	.....	.....	.....	E.D.	.....	.....	
Saxon	6-8	12	.....	.....	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Scripps-Booth	6-8	21	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	Series.	Inspec. lamp, 6 v., 2 cp.
Simplex	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Tail lamp double.
Singer	6-8	32	.....	.....	6-8	2	6-8	2	5	E.S.	S.	Warner lens.	Tail lamp double.
Sphinx	6-8	12	6-8	4H	6-8	4	.....	.....	25	E.S.	S.	.....	
Standard	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Stanley	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.D.	D.	Warner lens.	
Stearns SK8	12-16	24	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	Dash lamp double.
SKL-4	12-16	18	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	Dash lamp double.
Stephens	6-8	21	6-8	4	3-4	2	3-4	2	20	E.S.	S.	.....	
Sterling	12-16	15	12-16	4	12-16	2	12-16	2	.....	E.S.	S.	.....	
Studebaker	6-8	12	.....	.....	6-8	2	6-8	2	10	E.S.	S.	Resist.	
Stutz	6-8	21	6-8	4H	6-8	2	6-8	2	.....	E.D.	D.	Warner lens.	
Sun	6-8	18	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Resist.	
Velie	6-8	15	6-8	4	3-4	2	3-4	2	5	E.S.	S.	.....	Dash lamp double.
Westcott	6-8	15	6-8	4H	3-4	2	3-4	2	.....	E.S.	S.	.....	Dash lamp double.
White	12-16	25	12-16	4H	12-16	4	12-16	4	C.B.	E.D.	D.	Warner lens.	
Willys-Knight	6-8	16	.....	.....	3-4	2	3-4	2	.....	E.D.	S.	Series.	Tail lamp Ediswan S.
Winton	6-8	21	6-8	12	6-8	4	6-8	2	20	E.S.	S.	.....	
Woods	60	25	30	8H	30	10	30	10	10	E.D.	D.	.....	
Yale	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.S.	S.	Series.	Dash lamp Ediswan D.

ABBREVIATIONS:—C.B.—Circuit Breaker. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance S.—Single wiring system. Series—Series connection.

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MOTOR WORLD GUIDE

Tires and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
ACME	Plain	16.00	17.20	s18.10	23.00	s23.90	24.40	25.80	s27.50	s29.80	s31.90	33.20	34.90	35.50	36.70	38.00	s45.30	46.70	48.30	49.60	51.10	52 80	57.70	59.50	61.40	s76.80	s78.90
	Kam Tread	.....	s17.90	.....	s24.20	s25.10	25.60	.....	.....	.....	s33.50	35.00	36.10	37.40	.....	.....	.....	qe49.00	50.70	52.10	53.70	55.30	60.60	62.60	64.30	.....	.....
	Dimple	18.40	19.60	s21.00	26.40	s27.40	28.00	29.80	s31.60	s33.40	s36.70	38.30	39.60	40.90	42.20	43.70	s52.10	53.70	55.50	57.10	58.80	60.50	66.30	68.50	70.50	s83.30	s90.70
	Hemisphere	20.20	s21.60	.....	29.00	.....	30.80	32.70	.....	.....	s40.50	qe42.10	43.60	44.90	46.40	s48.10	.....	.....	.....	63.80	64.70	66.50	s78.00	s78.20	77.70	.....	.....
	Gray and Red Tubes	3.65	3.85	4.15	4.95	5.15	5.45	5.85	6.05	6.05	6.25	6.40	6.65	6.75	6.95	7.15	8.15	8.35	8.45	8.60	8.80	9.05	10.00	10.30	10.55	11.20	11.50
ADVANCE	Plain	s12.75	s13.40	.....	s17.45	s18.35	20.40	s23.80	.....	.....	s26.75	27.25	28.55	29.15	30.15	31.05	.....	s38.05	s39.25	41.10	41.75	43.45	.....	s46.90	s49.65	s74.55	.....
	Non-Skid	s13.35	s14.10	.....	s18.25	s19.30	21.40	s24.95	.....	.....	s28.00	28.60	29.85	30.65	31.50	32.60	.....	s39.95	s41.30	43.10	43.90	45.80	.....	s49.30	s52.15	s78.20	.....
AJAX	Plain	s13.65	s14.45	s18.75	18.60	s19.50	22.55	26.95	28.85	s28.95	30.25	30.80	32.10	32.65	34.10	34.55	.....	.....	43.90	45.55	46.10	47.80	s52.45	53.50	54.45	.....	.....
	Non-Skid	s15.30	s16.10	s.....	s21.35	s22.20	25.30	29.70	.....	s32.25	33.55	34.10	35.40	35.95	37.40	37.85	qe46.10	qc52.45	48.30	49.95	50 80	52.20	56.85	s56.90	58.85	s78.35	s79.30
	Road King	s14.70	s15.55	.....	s19.95	s20.95	24.25	.....	.....	.....	32.50	33.10	34.55	35.10	.....	37.10	.....	48.40	48.95	51.30	52.05	53.90	61.15	s61.40	63.25	.....	.....
	Gray Tubes	3.20	3.00	3.4	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.50	5.70	6.15	6.35	6.5)	6.60	6.85	7.00	8.40	8.50	8.60	9.20	9.35
	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.50	6.70	7.60	7.80	8.05	8.30	8.50	8.75	9.90	10.00	10.15	10.85	11.05
AMAZON	Ribbed	.....	qs16.75	.....	qs21.70	.....	qc25.05	.....	.....	.....	.....	qe33.90	qc36.30	qc36.90	.....	.....	.....	.....	qe49.20	qc51.45	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs16.70	qs17.65	.....	qs22.85	.....	qc26.35	.....	.....	.....	qs34.75	qc35.70	c38.20	c38.85	.....	.....	.....	qc50.35	c51.80	c54.15	c54.90	qc57.45	c64.75	.....	c66.95	.....	.....
	Gray Tubes	3.15	3.50	....	4.10	.....	4.25	4.50	.....	.....	5.70	5.90	6.15	6.25	6.40	6.50	.....	7.20	7.30	7.45	7.65	7.95	8.55	9.00	9.10	9.25	10.50
AMERICAN	Ribbed or Plain	.....	16.00	.....	20.45	22.10	24.05	.....	.....	.....	32.30	33.00	34.70	35.45	.....	.....	.....	.....	47.40	49.00	50.30	.....	58.35	.....	61.90	.....	.....
	Triple A Non-Skid	.....	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.00	51.35	53.55	59.40	60.30	62.95	.....	.....
	Seal Brown Tubes	3.00	3.25	.....	3.75	3.80	3.85	4.20	.....	.....	4.65	4.80	5.00	5.15	.....	5.60	6.20	6.25	6.30	6.40	6.55	6.70	7.65	7.75	7.90	9.25	9.50
	Red Indian Tubes	3.25	3.50	.....	4.20	4.25	4.30	4.60	.....	.....	5.40	5.50	5.70	5.80	6.00	6.15	6.95	7.00	7.10	7.20	7.35	7.65	8.60	8.85	8.95	10.20	10.40
ARABIAN	Fluted Tread	.....	qs15.60	.....	qs20.05	.....	24.45	.....	.....	.....	s31.05	.....	32.80	33.00	.....	36.05	.....	.....	qe43.45	s46.75	48.45	49.05	.....	.....	54.40	.....	.....
	Non-Skid	.....	qs16.40	.....	qs21.10	.....	25.65	.....	.....	.....	32.65	qe33.90	34.45	34.65	.....	38.95	.....	.....	qe45.60	49.05	50.60	51.50	.....	.....	57.10	.....	.....
	Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
ARCADIA	Plain	qs14.00	qs15.20	.....	s19.60	.....	22.25	27.85	.....	qs32.70	s29.80	30.40	31.65	32.60	37.60	34.55	.....	.....	43.40	45.25	45.95	47.90	53.25	s59.15	56.00	s99.75	s108.25
	Non-Skid	.....	qs15.95	.....	s20.60	.....	23.45	29.15	.....	qs34.40	31.45	31.90	33.35	34.25	39.45	36.45	.....	.....	45.70	47.45	48.25	50.25	55.75	s62.40	58.95	s105.00	s108.50
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.60	8.90	8.20	9.65	9.80
ARCHER	Ribbed Tread	.....	.....	.....	.....	.....	qc35.90	.....	.....	.....	.....	qe45.15	qc46.30	qc47.50	.....	qe49.90	.....	qc51.90	qc53.25	qc54.55	qc55.80	.....	qc65.85	qc67.55	qc68.90	.....	qc83.15
	Non-Skid	.....	.....	.....	.....	.....	qc37.80	.....	.....	.....	.....	qe47.10	qc48.25	qc49.45	.....	qc51.80	.....	qc55.85	qc55.20	qc56.45	qc57.70	qc58.95	qc67.80	qc68.50	qc70.80	.....	qc85.10
	Gray Tubes	.....	3.15	.....	3.25	.....	3.40	.....	.....	.....	.....	4.60	4.75	4.85	.....	5.10	.....	.....	6.00	6.05	6.15	6.25	7.35	7.50	7.65	.....	8.50
	Red Tubes	.....	4.15	.....	4.25	.....	4.40	.....	.....	.....	.....	6.00	6.15	6.30	.....	6.55	.....	.....	7.60	7.85	8.00	8.15	8.30	9.55	9.75	9.95	.....	10.50
ARMSTRONG	Red Tubes	.....	4.00	4.50	4.75	.....	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.00	9.45	9.60	9.75	11.60	11.75
	Plain	.....	19.00	.....	23.75	.....	27.00	31.25	.....	.....	37.00	38.00	40.00	40.50	44.50	42.00	.....	.....	54.50	57.00	60.50	.....	66.00	73.00	68.50	.....	.....
	Non-Skid	.....	21.25	.....	26.00	.....	31.00	34.25	.....	.....	40.75	42.00	43.00	43.50	48.75	46.00	.....	.....	59.50	62.50	66.50	.....	72.50	80.00	74.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	40.05	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	45.10	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
BALTIMORE	Concord	20.17	20.64	.....	25.07	o 27.80	29.50	32.07	.....	.....	o 34.45	35.44	o 36.72	38.02	o 39.47	40.75	.....	45.72	47.23	o 48.68	51.36	o 52.77	o 59.80	62.45	o 65.12	o 86.21	93.51
	Box Tread	22.19	23.27	.....	29.10	o 30.03	33.22	36.08	.....	.....	o 40.15	41.47	o 42.68	44.22	o 45.65	47.18	.....	50.00	51.81	o 54.89	59.62	o 60.83	o 67.76	70.40	o 72.05	o 89.65	104.28
	Tubes	3.25	3.34	.....	4.30	4.45	4.60	4.95	.....	.....	5.45	5.55	5.75	5.95	6.05	6.20	.....	7.25	7.45	7.60	7.85	8.10	8.90	9.15	9.45	.....	11.05
	Wil-Lex Non-Skid	.....	qs14.10	.....	qs18.25	qs19.30	q21.40	.....	.....	.....	qs28.00	.....	qc29.85	qc30.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
BATAVIA	Plain	.....	qs14.35	.....	qs18.25	.....	qc21.35	.....	.....	.....	.....	qc29.05	qc30.45	qc31.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ribbed	.....	.....	.....	.....	.....	c23.70	c26 90	.....	.....	.....	qc32.30	c33.90	c34.60	qc36.20	cs36.75	cs48.15	qc44.55	c46.00	c48.10	c48.75	cs89.95	c56.40	.....	c59.80	.....	.....
	Security Tread	qs14.40	qs16.80	.....	qs21.35	qs23 00	c24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	cs45.45	qc46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	cs87.25	cs89.00
	Gray Tubes	2.95	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	9.20	9.45
BERGOUGNAN	Plain	s14.85	s17.70	.....	s21.60	s22.85	25.20	s27.85	.....	35.25	s30.90	32.85	35.20	37.20	s38.00	s40.00	s46 55	47.60	50.35	50.95	51.45	s53.05	50.45	69.70	63.25	s60.40	83.10
	Non-Skid	s16.70	s18.10	.....	s25.20	s26.30	27.55	s29.55	.....	39.65	s34.90	36.50	39.30	40.75	s42.65	s43.70	s52.20	52.90	53.35	55.05	56.70	s59.10	66.15	68.15	69.65	s88.75	91.20
	Red Tubes	3.75	3.80	.....	4.45	4.80	4.85	5.20	.....	6.60	6.05	6.25	6.80	6.75	6.95	7.15	7.35	8.10	8.30	8.35	8.65	8.90	9.70	10.00	10.15	11.15	11.20
BESAW	Blackford Non-Skid	.....	qs15.70	.....	qs19.95	qs21.35	c23.60	.....	.....	.....	qs31.50	qc32.05	qc33.90	34.50	.....	.....	.....	.....	.....	cs48.60	.....	.....	.....	.....	.....	.....	.....
	BeSaw Non-Skid	.....	24.25	.....	30.30	31.35	35.05	38.00	.....	.....	42.30	43.70	45.00	46.55	48.10	50.75	.....	.....	54.60	57.90	62.75	64.10	71.35	74.15	75.90	.....	.....
	BeSaw Plain	.....	20.80	.....	24.90	27.65	29.30	31.80	.....	.....	34.30	35.55	36.90	38.15	39.30	40.50	.....	.....	46.95	48.40	49.70	51.10	57.80	50.40	80.90	.....	.....
BOONE	Smooth	.....	13.05	.....	16.90	17.80	19.40	.....	.....	.....	25.85	26.40	27.70	28.35	.....	30.10	.....	.....	37.90	39.35	39.95	.....	43.95	.....	46.55	.....	.....
	Ribbed Tread	.....	14.45	.....	18.75	19.85	21.00	.....	.....	.....	28.70	29.35	30.80	31.40	.....	33.45	.....	.....	41.80	43.65	44.25	.....	52.30	.....	55.35	.....	.....
	Non-Skid	.....	17.15	.....	22.20	23.80	25.55	.....	.....	.....	34.05	34.75	36.80	37.30	.....	39.60	.....	.....	49.50	51.75	52.55	.....	61.80	.....	65.45	.....	.....
	Gray Tubes	.....	3.05	.....	3.50	3.60	3.65	.....	.....	.....	4.80	4.95	5.10	5.20	.....	5.45	.....	.....	6.50	6.60	6.70	.....	7.90	.....	8.25	.....	.....
	Red Tubes	.....	4.00	.....	4.55	.....	4.70	.....	.....	.....	6.25	6.45	6.60	6.75	.....	7.05	.....	.....	8.45	8.60	8.75	.....	10.30	.....	10.60	.....	.....
BOWERS	Plain	16.85	17.85	.....	24 00	25.50	26 95	28.80	.....	.....	33.50	35.45	37.25	38.20	39.05	40.95	.....	.....	47.50	49.40	51.20	.....	57.50	68.00	64.25	.....	90.85
	Grip Tread	18.70	19 65	.....	28 30	29.70	31 70	34.55	.....	.....	37.30	38 80	40.05	41.90	42.90	45.90	.....	.....	51.25	53.15	56.00	.....	67.20	69.65	71.35	.....	103.40
	Gray Tubes	3.30	3 80	.....	4.10	4.35	4 60	4.85	.....	.....	5.00	6.10	6.40	6.50	6.60	6.75	.....	.....	7.70	8.10	8.40	.....	9.50	9.70	10.00	.....	11.75
BRAENDER	Plain	qs18.95	qs14.80	qs18.10	qs18.25	qs19.15	qs21.30	qs24.05	qs30.00	qs27.65	qs26.20	qs28.70	qs30.15	qs30.80	qs32.65	qs31.90	41.25	42.65	41.25	42.25	43.25	44.20	48.40	48.50	49.25	qs82.25	qs87.75

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER (Cootinued)	Non-Skid	qs16.20	qs16.45	qs21.00	q21.30	qs22.20	q24.70	q27.90	qs34.80	qs32.05	q32.75	q33.35	q35.00	q35.75	q37.90	q37.00	47.75	46.40	47.95	50.15	51.00	51.75	57.30	64.80	61.90	qs96.20	cs101.75
	Gray Tubes	3.25	3.40	3.60	4.15	4.25	4.40	4.50	5.30	5.30	5.40	5.65	5.75	5.85	6.10	6.30	7.00	7.10	7.20	7.35	7.55	7.90	8.90	9.05	9.15	10.00	10.25
	Red Tubes	3.60	3.70	4.00	4.60	4.70	4.80	5.00	6.00	5.90	6.00	6.20	6.40	6.60	6.80	7.00	7.80	7.90	8.10	8.20	8.40	8.70	9.80	10.00	10.20	11.00	11.20
BRUNSWICK	Plain	13.30	qs14.35	.....	qs18.25	s19.60	21.35	c24.20	.....	.....	qs28.45	c29.05	c30.45	c31.20	c32.60	c33.10	c38.85	c40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	s83.10	c92.45
	Skid Not	15.60	qs16.80	.....	qs21.35	qs23.00	24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	c45.45	c46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	s103.90	c113.00
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	4.10	.....	.....	4.70	4.85	5.05	5.20	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
BULL	Plain	qs13.50	qs14.00	.....	qs17.90	qs19.55	21.10	c23.80	.....	.....	qs27.85	q28.35	c30.00	c30.45	c31.65	cs37.90	.....	.....	cs41.75	c43.25	c43.95	cs53.75	c50.90	cs51.75	c53.65	.....	.....
	Non-Skid	qs15.15	qs15.70	.....	qs19.95	qs21.35	23.60	c26.95	.....	.....	qs31.50	q32.05	c33.90	c34.50	c36.30	cs43.40	.....	.....	cs46.75	c48.60	c49.15	cs60.00	c59.95	cs61.05	c63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CAPITOL	Plain	qs13.90	qs13.65	.....	qs17.90	qs18.60	20.80	24.15	.....	c29.00	qs27.15	c27.95	29.15	c29.70	c33.70	c31.75	.....	.....	c39.75	c41.70	c42.35	c43.60	c47.70	cs53.15	c50.50	.....	.....
	Non-Skid	qs14.85	qs14.50	.....	qs18.35	qs19.70	21.75	25.80	.....	c30.20	qs28.50	c29.20	30.40	c31.25	c35.35	c33.10	.....	.....	c42.00	c43.55	c44.45	c46.05	c50.05	cs56.55	c52.95	.....	.....
	Redman Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Paragum Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
CARLISLE	Lightning Tread	.....	.....	.....	.....	.....	qc38.50	.....	.....	.....	.....	qc48.75	c50.25	qc51.50	.....	.....	c55.00	qc56.50	c58.00	c59.25	c60.75	.....	s72.00	.....	c75.50	.....	cs91.50
CARSPRING	Plain	qs18.20	qs19.55	.....	s25.30	.....	29.15	36.30	.....	qs36.75	s35.20	36.00	37.70	38.50	44.55	41.00	.....	.....	51.40	53.70	54.45	56.65	62.50	s69.85	66.25	s102.85	s105.60
	"C" Tread	.....	qs20.45	.....	s26.50	.....	30.55	38.25	.....	qs38.50	s36.95	37.75	39.60	40.50	46.75	43.15	.....	.....	53.90	56.25	57.15	59.50	65.70	s73.70	69.55	s108.35	s111.00
	Suction Tread	.....	.....	.....	s29.75	.....	34.25	42.90	.....	qs42.70	s41.40	42.30	44.25	45.35	52.25	48.20	.....	.....	60.35	63.00	64.10	66.75	73.50	s82.50	77.80	s121.00	s124.30
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
CENTURY-PLAINFIELD	Plain	.....	qs19.50	.....	qs26.00	qs27.50	30.50	.....	.....	.....	s36.00	38.00	39.00	40.00	41.00	43.75	s47.00	qc47.25	49.00	50.35	54.15	55.90	61.75	64.50	65.50	s82.00	s87.00
	Non-Skid	.....	qs21.50	.....	27.50	29.00	32.00	.....	.....	.....	s38.00	40.00	41.00	42.00	43.00	45.00	s48.50	qc49.75	50.00	53.00	57.00	58.00	65.00	68.00	69.00	s86.00	s91.00
	Superbar	.....	16.30	.....	qs21.50	qs22.50	c21.85	.....	.....	.....	qs28.00	c28.60	c29.85	c30.65	c35.00	.....	.....	.....	c41.30	c43.10	43.90	.....	49.20	55.70	52.15	.....	.....
	Tubes	3.45	3.55	3.80	4.55	4.70	4.90	5.25	5.55	5.65	5.75	5.85	6.10	6.30	6.35	6.55	7.35	.....	7.90	8.05	8.35	8.60	9.45	9.65	10.00	.....	11.65
CHAMPION*	Non-Skid	14.45	14.10	.....	18.25	.....	21.40	23.80	.....	.....	28.00	28.60	29.85	30.65	.....	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Champion Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
CHESTER	Plain	s13.50	s14.00	s18.25	s17.90	s19.55	21.10	23.80	s30.00	s31.90	s27.85	28.35	30.00	30.45	s31.65	s37.90	.....	.....	s41.75	43.25	43.95	s53.75	50.90	s51.75	53.65	.....	.....
	Non-Skid	s15.15	s15.70	s20.75	s19.95	s21.35	23.60	26.95	s34.20	s37.50	s31.50	32.05	33.90	34.50	s36.30	s43.40	.....	.....	s46.75	48.60	49.15	s60.00	59.95	s61.05	63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CLEVELAND-STANDARD	Plain	19.80	20.50	.....	25.30	26.80	28.15	31.90	.....	34.10	34.50	35.65	37.40	38.50	39.60	40.70	.....	47.55	47.95	48.80	50.15	51.45	58.30	60.00	61.60	79.20	88.00
	Non-Skid	20.90	23.60	.....	29.90	31.90	34.75	36.30	.....	39.15	40.00	40.90	41.80	42.90	44.20	45.50	49.50	51.05	51.90	53.25	56.10	58.10	64.20	67.75	69.75	90.80	96.80
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.20	5.40	5.85	5.95	6.15	6.30	6.45	6.90	6.95	7.80	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
	Gray Tubes	3.40	3.50	3.75	4.30	4.40	4.50	5.00	5.20	5.35	5.50	5.65	5.80	6.00	6.20	6.40	7.15	7.25	7.40	7.50	7.70	8.00	8.90	9.10	9.20	10.55	10.75
COLUMBIA	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90	.....	29.85	28.25	28.80	30.10	30.80	37.20	32.85	.....	.....	41.60	43.45	44.15	45.90	49.55	57.85	52.55	.....	.....
	Non-Skid	14.50	14.95	.....	19.35	20.35	22.45	29.25	.....	.....	29.65	30.20	31.65	32.40	39.00	34.50	.....	.....	43.65	45.65	46.35	48.25	52.05	60.75	55.20	.....	.....
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.75	5.50	.....	.....	6.25	6.45	6.65	6.85	7.80	8.60	8.10	.....	.....
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05	.....	5.50	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	.....	.....
COMBINATION	Plain	qs12.75	qs13.70	.....	qs17.85	qs18.85	20.55	q23.25	.....	.....	qs27.35	27.85	29.20	29.85	31.30	31.80	39.20	.....	39.75	41.50	42.20	43.90	s46.40	47.15	49.10	.....	cs70.25
	Hold-on Non-Skid	qs15.05	qs16.05	.....	qs20.55	qs21.55	23.70	q26.85	.....	.....	qs31.35	32.00	33.65	34.26	35.90	36.25	44.15	.....	46.75	48.85	49.60	51.60	s57.25	58.10	60.60	.....	cs84.30
	Gray Tubes	3.00	3.15	.....	3.75	3.80	3.90	4.15	.....	.....	5.00	5.25	5.35	5.50	5.65	5.90	6.55	.....	6.75	6.95	7.15	7.25	8.15	8.40	8.55	.....	9.10
	Red Tubes	3.30	3.45	.....	4.15	4.20	4.35	4.65	.....	.....	5.50	5.85	5.95	6.10	6.20	6.50	7.20	.....	7.50	7.75	8.00	8.10	9.15	9.30	9.45	.....	10.05
COMPRESSION	Patented Tube	14.00	15.00	.....	16.00	17.00	18.00	19.00	.....	.....	20.00	21.00	22.00	23.00	24.00	25.00	.....	26.00	27.00	28.00	29.00	30.00	32.00	33.00	34.00	.....	.....
CONVERSE TRIPLE TREAD*	Plain	.....	s20.20	.....	s26.00	s28.65	30.25	.....	.....	.....	35.00	36.30	37.60	38.95	40.10	41.40	qc45.00	qc46.40	47.85	49.40	50.70	52.10	58.70	60.60	62.15	.....	.....
	Non-Skid	.....	.....	.....	27.50	32.90	36.10	.....	.....	.....	43.05	44.40	45.95	47.60	48.80	50.15	52.45	54.05	55.65	58.60	63.00	64.80	72.00	74.85	77.35	.....	.....
	Gray Tubes	.....	3.30	3.75	4.00	4.10	4.20	4.60	.....	.....	5.30	5.45	5.70	5.90	6.00	6.25	.....	.....	7.00	7.40	7.75	7.80	8.80	8.85	9.00	9.35	9.75
	Red Tubes	.....	3.75	4.05	4.45	4.65	4.70	4.95	.....	.....	5.85	6.00	6.30	6.55	6.70	6.90	.....	.....	8.00	8.15	8.50	8.70	9.80	10.00	10.15	10.40	10.80
CORTLAND	C. C. Plain	.....	s14.10	.....	s18.35	.....	s21.45	s23.75	.....	.....	s28.15	28.70	30.05	30.70	s31.50	s32.30	s38.95	s40.05	41.30	43.25	43.95	s44.75	49.35	s50.85	52.25	s68.75	s70.85
	C. C. Non-Skid	.....	s14.85	.....	s19.20	.....	22.50	s24.90	.....	.....	s29.45	30.10	31.40	32.25	s32.90	s33.25	s40.95	s42.05	43.45	45.35	46.20	s45.80	51.85	s52.90	54.90	s71.50	s74.50
	Yankee Plain	.....	s19.65	.....	s24.10	.....	27.70	s29.90	.....	.....	s35.65	37.60	38.50	39.50	s40.50	s41.50	s46.50	s47.55	48.50	51.10	54.90	s57.42	65.15	s66.85	68.85	s81.45	s83.25
	Yankee Non-Skid	.....	s21.80	.....	s26.75	.....	30.75	s33.15	.....	.....	s39.60	41.75	42.80	43.85	s44.95	s46.00	s51.70	s52.80	53.90	56.75	61.00	s63.80	72.35	s74.25	76.50	s90.50	s92.50
CUPPLES	Rough Tread	.....	qs18.00	.....	qs25.00	.....	qc30.00	.....	.....	.....	qs37.00	qs39.00	qc40.00	c41.00	.....	.....	.....	qc48.00	qc49.00	qc52.00	c56.00	.....	c63.00	.....	cs67.00	.....	.....
	Red Tubes	.....	3.95	.....	4.75	.....	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	.....	.....	8.40	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Rhinos Inner Tubes	.....	7.90	.....	9.50	.....	9.90	.....	.....	.....	12.80	13.20	13.50	13.90	.....	.....	.....	16.80	17.30	17.60	17.90	.....	21.00	.....	21.90	.....	.....
CURTIS	Plain	18.20	18.50	.....	24.70	.....	27.60	.....	.....	.....	32.25	33.45	34.65	35.85	.....	38.10	.....	.....	44.15	45.50	46.75	48.00	54.30	55.80	57.30	.....	.....
	Suction	20.70	20.90	.....	27.25	.....	33.00	.....	.....	.....	39.75	41.15	42.35	43.90	.....	46.20	.....	.....	51.30	52.90	57.40	59.10	65.25	66.60	71.30	.....	.....
	Gray Tubes	3.35	3.45	.....	4.00	.....	4.15	.....	.....	.....	5.40	5.65	5.80	5.90	.....	6.15	.....	.....	7.35	7.55	7.75	8.00	9.00	9.30	9.40	.....	.....
	Red Tubes	3.65	3.85	.....	4.45	.....	4.55	.....	.....	.....	6.05	6.20	6.45	6.55	.....	6.80	.....	.....	8.15	8.30	8.65	8.80	9.90	10.20	10.30	.....	.....
DAYTON	Plain	qs21.65	qs20.70	.....	qs25.20	qs27.95	29.65	.....	.....	s44.70	qs34.75	qc36.05	37.40	38.70	s39.85	41.10	s55.95	.....	47.70	49.15	50.50	51.85	s58.70	s60.40	61.90	s80.80	s92.85
	Non-Skid	qs26.30	qs24.75	.....	qs31.05	qs32.05	35.45	.....	.....	.....	qs42.90	qc44.30	45.65	47.25	s48.80	51.55	.....	.....	55.40	58.75	63.80	65.15	s72.60	s75.40	77.20	s96.10	s111.80
	Red Tubes	3.65	3.75	.....	4.80	4.95	5.15	.....	.....	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	.....	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
DEFIANCE	Plain	qs13.00	qs13.15	.....	17.45	s17.70	21.30	22.55	.....	.....	s26.95	27.70	28.55	29.15	29.95	31.10	.....	.....	39.05	41.50	42.00	.....	.....	cs47.85	c49.65	.....	.....
	Tiger Tread	qs14.35	qs14.60	.....	19.20	s19.80	22.85	25.05	.....	.....	s29.05	31.08	31.55	32.85	33.28	33.70	.....	.....	42.25	45.70	47.25	48.45	.....	cs51.15	c54.45	.....	.....
	Gray Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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MOTOR WORLD GUIDE

Tires and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
ACME	Plain	16.00	17.20	s18.10	23.00	s23.90	24.40	25.80	s27.50	s30.80	s31.90	33.20	34.30	35.50	36.70	38.00	s45.30	46.70	48.30	49.60	51.10	52.60	57.70	59.50	61.40	s76.80	s78.90
	Kam Tread	.....	s17.90	.....	s24.20	s25.10	25.60	.....	.....	.....	s33.50	35.00	36.10	37.40	.....	.....	.....	qc49.00	50.70	52.10	53.70	55.30	60.60	62.60	64.30	.....	.....
	Dimple	18.40	19.60	s21.00	26.40	s27.40	28.00	29.80	s31.60	s35.40	s36.70	38.30	39.60	40.90	42.20	43.70	s52.10	53.70	55.50	57.10	58.80	60.50	66.30	68.50	70.50	s88.30	s90.70
	Hemisphere	20.20	s21.60	.....	29.00	.....	30.80	32.70	.....	.....	s40.50	qc42.10	43.60	44.90	46.40	s48.10	.....	.....	.....	62.80	64.70	66.50	s73.00	s75.20	77.70	.....	.....
	Gray and Red Tubes	3.65	3.85	4.15	4.95	5.15	5.45	5.85	6.05	6.05	6.25	6.40	6.65	6.75	6.95	7.15	8.15	8.35	8.45	8.60	8.80	9.05	10.00	10.30	10.55	11.20	11.50
ADVANCE	Plain	s12.75	s13.40	.....	s17.45	s18.35	20.40	s23.80	.....	.....	s26.75	27.25	28.55	29.15	30.15	31.05	.....	s38.05	s39.25	41.10	41.75	43.45	.....	s46.90	s49.65	s74.55	.....
	Non-Skid	s13.35	s14.10	.....	s18.25	s19.30	21.40	s24.95	.....	.....	s28.00	28.60	29.85	30.65	31.50	32.60	.....	s39.95	s41.30	43.10	43.90	45.60	.....	s49.20	s52.15	s78.20	.....
AJAX	Plain	s13.65	s14.45	s18.75	18.60	s19.50	22.55	26.95	28.85	s28.95	30.25	30.80	32.10	32.65	34.10	34.55	.....	.....	43.90	45.55	46.10	47.80	s52.45	52.50	54.45	.....	.....
	Non-Skid	s15.30	s16.10	s.....	s21.35	s22.20	25.30	29.70	.....	s32.25	33.55	34.10	35.40	35.95	37.40	37.85	qc46.10	qc52.45	48.30	49.95	50.50	52.20	56.85	s56.90	58.85	s78.35	s79.30
	Road King	s14.70	s15.55	.....	s19.95	s20.95	24.25	.....	.....	.....	32.50	33.10	34.55	35.10	.....	37.10	.....	48.40	48.95	51.20	52.05	53.90	61.15	s61.40	63.25	.....	.....
	Gray Tubes	3.20	3.00	3.4(	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.50	5.70	6.15	6.35	6.5(	6.60	6.85	7.00	8.40	8.50	8.60	9.20	9.35
	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.50	6.70	7.60	7.80	8.05	8.30	8.50	8.75	9.90	10.00	10.15	10.85	11.05
AMAZON	Ribbed	.....	qs16.75	.....	qs21.70	.....	qc25.05	.....	.....	.....	.....	qc33.90	qc36.30	qc36.90	.....	.....	.....	.....	qc49.20	qc51.45	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs16.70	qs17.65	.....	qs22.85	.....	qc26.35	.....	.....	.....	qs34.75	qc35.70	c38.20	c38.85	.....	.....	.....	qc50.35	c51.80	c54.15	c54.90	qc57.45	c64.75	.....	c66.95	.....	.....
	Gray Tubes	3.15	3.50	.....	4.10	.....	4.25	4.50	.....	.....	5.70	5.90	6.15	6.25	6.40	6.50	.....	7.20	7.30	7.45	7.65	7.95	8.55	9.00	9.10	9.25	10.50
AMERICAN	Ribbed or Plain	.....	16.00	.....	20.45	22.10	24.05	.....	.....	.....	32.30	33.00	34.70	35.45	.....	.....	.....	.....	47.40	49.60	50.30	.....	58.35	.....	61.90	.....	.....
	Triple A Non-Skid	.....	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Seal Brown Tubes	3.00	3.25	.....	3.75	3.80	3.85	4.20	.....	.....	4.65	4.80	5.00	5.15	.....	5.60	6.20	6.25	6.30	6.40	6.55	6.70	7.65	7.75	7.90	9.35	9.50
	Red Indian Tubes	3.25	3.50	.....	4.20	4.25	4.30	4.60	.....	.....	5.40	5.50	5.70	5.80	6.00	6.15	6.95	7.00	7.10	7.20	7.35	7.65	8.60	8.85	8.95	10.20	10.40
ARABIAN	Fluted Tread	.....	qs15.60	.....	qs20.05	.....	24.45	.....	.....	.....	s31.05	.....	32.80	33.00	.....	36.05	.....	.....	qc43.45	s46.75	48.45	49.05	.....	.....	54.40	.....	.....
	Non-Skid	.....	qs16.40	.....	qs21.10	.....	25.65	.....	.....	.....	32.65	qc33.90	34.45	34.65	.....	38.95	.....	.....	qc45.60	49.05	50.80	51.50	.....	.....	57.10	.....	.....
	Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
ARCADIA	Plain	qs14.00	qs15.20	.....	s19.60	.....	22.25	27.85	.....	qs32.70	s29.80	30.40	31.65	32.60	37.60	34.55	.....	.....	43.40	45.25	45.95	47.90	53.25	s59.15	56.00	s99.75	s103.25
	Non-Skid	.....	qs15.95	.....	s20.60	.....	23.45	29.15	.....	qs34.40	31.45	31.90	33.35	34.25	39.45	36.45	.....	.....	45.70	47.45	48.25	50.25	55.75	s62.40	58.95	s105.00	s108.50
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
ARCHER	Ribbed Tread	.....	.....	.....	.....	.....	qc35.90	.....	.....	.....	.....	qc45.15	qc46.30	qc47.50	.....	qc49.90	.....	qc51.90	qc53.25	qc54.55	qc55.80	.....	qc65.85	qc67.55	qc68.90	.....	qc83.15
	Non-Skid	.....	.....	.....	.....	.....	qc37.80	.....	.....	.....	.....	qc47.10	qc48.25	qc49.45	.....	qc51.80	.....	qc53.85	qc55.20	qc56.45	qc57.70	qc58.95	qc67.80	qc69.50	qc70.80	.....	qc85.10
	Gray Tubes	.....	3.15	.....	3.25	.....	3.40	.....	.....	.....	.....	4.60	4.75	4.85	.....	5.10	.....	6.00	6.05	6.15	6.25	6.35	7.35	7.50	7.65	.....	8.50
	Red Tubes	.....	4.15	.....	4.25	.....	4.40	.....	.....	.....	.....	6.00	6.15	6.30	.....	6.55	.....	7.80	7.85	8.00	8.15	8.20	9.55	9.75	9.95	.....	10.80
ARMSTRONG	Red Tubes	.....	4.00	4.50	4.75	.....	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.60	11.75
	Plain	.....	19.00	.....	23.75	.....	27.00	31.25	.....	.....	37.00	38.00	40.00	40.50	44.50	42.00	.....	.....	54.50	57.00	60.50	.....	66.00	73.00	68.50	.....	.....
	Non-Skid	.....	21.25	.....	26.00	.....	31.00	34.25	.....	.....	40.75	42.00	43.00	43.50	48.75	46.00	.....	.....	59.50	62.50	66.50	.....	72.50	80.00	74.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	40.05	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	45.10	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
BALTIMORE	Concord	20.17	20.64	.....	25.07	o 27.80	29.50	32.07	.....	.....	o 34.45	35.44	o 36.72	38.02	o 39.47	40.75	.....	45.72	47.23	o 48.68	51.36	o 52.77	o 59.59	62.45	o 65.12	o 86.21	93.51
	Bar Tread	22.19	23.27	.....	29.10	o 30.03	33.22	36.08	.....	.....	o 40.15	41.47	o 42.68	44.22	o 45.65	47.18	.....	50.00	51.81	o 54.89	59.62	o 60.83	o 67.76	70.40	o 72.05	o 89.65	104.28
	Tubes	3.25	3.34	.....	4.30	4.45	4.60	4.95	.....	.....	5.45	5.55	5.75	5.95	6.05	6.20	.....	7.25	7.45	7.60	7.85	8.10	8.90	9.15	9.45	.....	11.05
	Wil-Lex Non-Skid	.....	qs14.10	.....	qs18.25	qs19.30	q21.40	.....	.....	.....	qs28.00	.....	qc29.85	qc30.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
BATAVIA	Plain	.....	qs14.35	.....	qs18.25	.....	qc21.35	.....	.....	.....	.....	qc29.05	qc30.45	qc31.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ribbed	.....	.....	.....	.....	.....	c23.70	c26.90	.....	.....	.....	qc32.30	c33.90	c34.60	qc36.20	cs36.75	cs43.15	qc44.55	c46.00	c48.10	c48.75	cs50.95	c56.40	.....	c59.80	.....	.....
	Security Tread	qs14.40	qs16.80	.....	qs21.35	qs23.00	c24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	cs45.45	qc46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	cs97.25	cs99.00
	Gray Tubes	2.95	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	9.20	9.45
BERGOUGNAN	Plain	s14.85	s17.70	.....	s21.60	s22.85	25.20	s27.85	.....	35.25	s30.90	32.85	35.20	37.20	s38.00	s40.00	s46.55	47.60	50.35	50.95	51.45	s53.05	59.45	60.70	62.35	s80.40	83.10
	Non-Skid	s16.70	s18.10	.....	s25.20	s26.30	27.55	s29.55	.....	39.65	s34.90	36.50	39.30	40.75	s42.65	s43.70	s52.20	52.90	53.85	55.05	56.70	s59.10	65.15	68.15	69.65	s88.75	91.89
	Red Tubes	3.75	3.80	.....	4.45	4.80	4.85	5.20	.....	6.60	6.05	6.25	6.60	6.75	6.95	7.15	7.35	8.10	8.20	8.30	8.65	8.90	9.70	10.00	10.15	11.15	11.20
BESAW	Blachford Non-Skid	.....	qs15.70	.....	qs19.95	qs21.35	c23.60	.....	.....	.....	qs31.50	qc32.05	qc33.90	34.50	.....	.....	.....	.....	.....	cs48.60	.....	.....	.....	.....	.....	.....	.....
	BeSaw Non-Skid	.....	24.25	.....	30.30	31.35	35.05	38.00	.....	.....	42.30	43.70	45.00	46.55	48.10	50.75	.....	.....	54.60	57.90	62.75	64.10	71.35	74.15	75.90	.....	.....
	BeSaw Plain	.....	20.50	.....	24.90	27.65	29.30	31.80	.....	.....	34.30	35.55	36.90	38.15	39.30	40.50	.....	.....	46.95	48.40	49.70	51.10	57.80	59.40	60.90	.....	.....
BOONE	Smooth	.....	13.05	.....	16.90	17.80	19.40	.....	.....	.....	25.85	26.40	27.70	28.35	.....	30.10	.....	.....	37.60	39.35	39.95	.....	43.95	.....	46.55	.....	.....
	Ribbed Tread	.....	14.45	.....	18.75	19.85	21.00	.....	.....	.....	28.70	29.35	30.80	31.40	.....	33.45	.....	.....	41.80	43.65	44.35	.....	52.20	.....	55.25	.....	.....
	Non-Skid	.....	17.15	.....	22.20	23.80	25.55	.....	.....	.....	34.05	34.75	36.80	37.30	.....	39.60	.....	.....	49.50	51.75	52.55	.....	61.80	.....	65.45	.....	.....
	Gray Tubes	.....	3.05	.....	3.50	3.60	3.65	.....	.....	.....	4.80	4.95	5.10	5.20	.....	5.45	.....	.....	6.50	6.60	6.70	.....	7.90	.....	8.25	.....	.....
	Red Tubes	.....	4.00	.....	4.55	.....	4.70	.....	.....	.....	6.25	6.45	6.60	6.75	.....	7.05	.....	.....	8.45	8.60	8.75	.....	10.30	.....	10.60	.....	.....
BOWERS	Plain	16.85	17.85	.....	24.00	25.50	26.95	28.80	.....	.....	33.50	35.45	37.25	38.20	39.05	40.95	.....	.....	47.50	49.40	51.26	.....	61.55	63.00	64.35	.....	90.85
	Grip Tread	18.70	19.65	.....	28.30	29.70	31.70	34.55	.....	.....	37.30	38.80	40.05	41.90	42.90	43.90	.....	.....	51.25	53.15	56.00	.....	67.20	69.65	71.85	.....	103.40
	Gray Tubes	3.30	3.80	.....	4.10	4.35	4.60	4.85	.....	.....	5.95	6.10	6.40	6.50	6.60	6.75	.....	.....	7.70	8.10	8.40	.....	9.50	9.70	10.00	.....	11.75
BRAENDER	Plain	qs13.95	qs14.30	qs18.10	q18.35	qs19.15	q21.30	q24.05	qs30.00	qs27.65	q28.20	q28.70	q30.15	q30.80	q32.65	q31.90	41.25	40.05	41.35	43.25	43.95	44.60	49.40	55.90	53.35	qs82.95	cs87.75

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER (Cootinued)	Non-Skid	qs16.20	qs16.45	qs21.00	q21.30	qs22.20	q24.70	q27.00	qs34.80	qs32.05	q32.75	q33.35	q35.00	q35.75	q37.90	q37.00	47.75	46.40	47.95	50.15	51.00	51.75	57.30	64.80	61.90	qs96.20	cs101.75
	Gray Tubes	3.25	3.40	3.60	4.15	4.25	4.40	4.50	5.30	5.30	5.40	5.65	5.75	5.85	6.10	6.30	7.00	7.10	7.20	7.35	7.55	7.90	8.90	9.05	9.15	10.00	10.25
	Red Tubes	3.60	3.70	4.00	4.60	4.70	4.80	5.00	6.00	5.90	6.00	6.20	6.40	6.60	6.80	7.00	7.80	7.90	8.10	8.20	8.40	8.70	9.80	10.00	10.20	11.00	11.20
BRUNSWICK	Plain	13.30	qs14.35		qs18.25	s19.60	21.35	c24.20			qs28.45	c29.05	c30.45	c31.20	c32.60	c33.10	c38.85	c40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	s83.10	c92.45
	Skid Not	15.60	qs16.8		qs21.35	qs23.00	24.95	c28.35			qs33.3	c34.00	c35.70	c36.45	c38.10	c38.70	c45.45	c46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	s103.90	c113.00
	Gray Tubes	2.85	2.90		3.45	3.60	3.75	4.10			4.70	4.85	5.05	5.20	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.3	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40		4.15	4.25	4.40	4.65			5.50	5.65	5.90	6.15	6.30	6.60	7.0	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
BULL	Plain	qs13.50	qs14.00		qs17.90	qs19.55	21.10	c23.80			qs27.85	q28.35	c30.00	c30.45	c31.65	cs37.90			cs41.75	c43.25	c43.95	cs53.75	c50.90	cs51.75	c53.65		
	Non-Skid	qs15.15	qs15.70		qs19.95	qs21.35	23.60	c26.95			qs31.50	q32.05	c33.90	c34.50	c36.30	cs43.40			cs46.75	c48.60	c49.15	cs60.00	c59.95	cs61.05	c63.10		
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60			7.30	7.45	7.70	8.30	8.65	8.85	9.00		
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65			6.50	6.70	6.95	7.30	7.95	8.15	8.25		
CAPITOL	Plain	qs13.90	qs13.65		qs17.90	qs18.60	20.80	24.15		c29.00	qs27.15	c27.95	29.15	c29.70	c33.70	c31.75			c39.75	c41.70	c42.35	c43.60	c47.70	cs53.15	c50.50		
	Non-Skid	qs14.85	qs14.80		qs18.35	qs19.70	21.75	25.80		c30.20	qs28.50	c29.20	30.40	c31.25	c35.35	c33.10			c42.00	c43.55	c44.45	c46.05	c50.05	cs56.55	c52.95		
	Redman Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35			7.30	7.40	7.50	7.75	8.90	9.20	9.00		
	Paragum Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45			6.45	6.55	6.70	7.00	8.00	8.50	8.20		
CARLISLE	Lightning Tread						qc38.50					qc48.75	c50.25	qc51.50			c55.00	qc56.50	c58.00	c59.25	c60.75		a72.00		c75.50		cs91.50
CARSPRING	Plain	qs18.20	qs19.55		s25.30		29.15	36.30		qs36.75	s35.20	36.00	37.70	38.50	44.55	41.00			51.40	53.70	54.45	56.65	62.50	s69.85	66.25	s102.85	s105.60
	"C" Tread		qs20.45		s26.50		30.55	38.25		qs38.50	s36.95	37.75	39.60	40.50	46.75	43.15			53.90	56.25	57.15	59.50	65.70	s73.70	69.55	s108.35	s111.00
	Suction Tread				s29.75		34.25	42.90		qs42.70	s41.40	42.30	44.25	45.35	52.25	48.20			60.35	63.00	64.10	66.75	73.50	s82.50	77.80	s121.00	s124.30
	Red Tubes	3.60	3.70		4.50		4.70	5.60		6.25	6.00	6.10	6.40	6.50	7.30	6.80			7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35		4.00		4.25	4.50		5.10	4.75	4.95	5.10	5.20	5.85	5.50			6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
CENTURY-PLAINFIELD	Plain		qs19.50		qs26.00	qs27.50	30.50				s36.00	38.00	39.00	40.00	41.00	43.75	s47.00	qc47.25	49.00	50.35	54.15	55.90	61.75	64.50	65.50	s82.00	s87.00
	Non-Skid		qs21.50		27.50	29.00	32.00				s38.00	40.00	41.00	42.00	43.00	45.00	s48.50	qc49.75	50.00	53.00	57.00	58.00	65.00	68.00	69.00	s86.00	s91.00
	Superbar		16.30		qs21.50	qs22.50	c21.85				qs28.00	c28.60	c29.85	c30.65	c35.00				c41.30	c43.10	43.90		49.20	55.70	52.15		
	Tubes	3.45	3.55	3.80	4.55	4.70	4.90	5.25	5.55	5.65	5.75	5.85	6.10	6.30	6.35	6.55	7.35		7.90	8.05	8.35	8.60	9.45	9.65	10.00		11.65
CHAMPION*	Non-Skid	14.45	14.10		18.25		21.40	23.80			28.00	28.60	29.85	30.65		35.90		39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15		
	Champion Gray Tubes	3.10	3.05		3.75	3.80	3.85	4.55			4.75	4.85	5.00	5.15	5.80	6.00		6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10		
CHESTER	Plain	s13.50	s14.00	s18.25	s17.90	s19.55	21.10	23.80	s30.00	s31.90	s27.85	28.35	30.00	30.45	s31.65	s37.90			s41.75	43.25	43.95	s53.75	50.90	s51.75	53.65		
	Non-Skid	s15.15	s15.70	s20.75	s19.95	s21.35	23.60	26.95	s34.20	s37.50	s31.50	32.05	33.90	34.50	s36.30	s43.40			s46.75	48.60	49.15	s60.00	59.95	s61.05	63.10		
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60			7.30	7.45	7.70	8.30	8.65	8.85	9.00		
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65			6.50	6.70	6.95	7.30	7.95	8.15	8.25		
CLEVELAND-STANDARD	Plain	19.80	20.50		25.30	26.80	28.15	31.90		34.10	34.50	35.65	37.40	38.50	39.60	40.70		47.55	47.95	48.80	50.15	51.45	58.30	60.00	61.60	79.20	88.00
	Non-Skid	20.90	23.60		29.90	31.90	34.75	36.30		39.15	40.00	40.90	41.80	42.90	44.20	45.50	49.50	51.05	51.90	53.25	56.10	58.10	64.20	67.75	69.75	90.80	96.80
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.20	5.40	5.85	5.95	6.15	6.30	6.45	6.90	6.95	7.80	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
	Gray Tubes	3.40	3.50	3.75	4.30	4.40	4.50	5.00	5.20	5.35	5.50	5.65	5.80	6.00	6.20	6.40	7.15	7.25	7.40	7.50	7.70	8.00	8.90	9.10	9.20	10.55	10.75
COLUMBIA	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90		29.85	28.25	28.80	30.10	30.80	37.20	32.85			41.60	43.45	44.15	45.90	49.55	57.85	52.55		
	Non-Skid	14.50	14.95		19.35	20.35	22.45	29.25			29.65	30.20	31.65	32.40	39.00	34.50			43.65	45.65	46.35	48.25	52.05	60.75	55.20		
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55		4.95	4.75	4.85	5.00	5.15	5.75	5.50			6.25	6.45	6.65	6.85	7.80	8.60	8.10		
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05		5.50	5.30	5.40	5.55	5.70	6.45	6.10			7.00	7.15	7.35	7.65	8.70	9.50	8.95		
COMBINATION	Plain	qs12.75	qs13.70		qs17.85	qs18.85	20.55	q23.25			qs27.35	27.85	29.20	29.85	31.30	31.80	39.20		39.75	41.50	42.20	43.90	s46.40	47.15	49.10		cs70.25
	Hold-on Non-Skid	qs15.05	qs16.05		qs20.55	qs21.55	23.70	q26.85			qs31.35	32.00	33.65	34.26	35.90	36.25	44.15		46.75	48.85	49.60	51.60	s57.25	58.10	60.60		cs84.30
	Gray Tubes	3.00	3.15		3.75	3.80	3.90	4.15			5.00	5.25	5.35	5.50	5.65	5.90	6.55		6.75	6.95	7.15	7.25	8.15	8.40	8.55		9.10
	Red Tubes	3.30	3.45		4.15	4.20	4.35	4.65			5.50	5.85	5.95	6.10	6.20	6.50	7.20		7.50	7.75	8.00	8.10	9.15	9.30	9.45		10.05
COMPRESSION	Patented Tube	14.00	15.00		16.00	17.00	18.00	19.00			20.00	21.00	22.00	23.00	24.00	25.00		26.00	27.00	28.00	29.00	30.00	32.00	33.00	34.00		
CONVERSE TRIPLE TREAD*	Plain		s20.20		s26.00	s28.65	30.25				35.00	36.30	37.60	38.95	40.10	41.40	qc45.00	qc46.40	47.85	49.40	50.70	52.10	58.70	60.60	62.15		
	Non-Skid				27.50	32.90	36.10				43.05	44.40	45.95	47.60	48.80	50.15	52.45	54.05	55.65	58.60	63.00	64.80	72.00	74.85	77.35		
	Gray Tubes		3.30	3.75	4.00	4.10	4.20	4.60			5.30	5.45	5.70	5.90	6.00	6.25			7.00	7.40	7.75	7.80	8.80	8.85	9.00	9.35	9.75
	Red Tubes		3.75	4.05	4.45	4.65	4.70	4.95			5.85	6.00	6.30	6.55	6.70	6.90			8.00	8.15	8.50	8.70	9.80	10.00	10.15	10.40	10.80
CORTLAND	C. C. Plain		s14.10		s18.35		s21.45	s23.75			s28.15	28.70	30.05	30.70	s31.50	s32.30	s38.95	s40.05	41.30	43.25	43.95	s44.75	49.35	s50.85	52.25	s68.75	s70.85
	C. C. Non-Skid		s14.85		s19.20		22.50	s24.90			s29.45	30.10	31.40	32.25	s32.90	s33.25	s40.95	s42.05	43.45	45.35	46.20	s45.80	51.85	s52.90	54.90	s71.50	s74.50
	Yankee Plain		s19.65		s24.10		27.70	s29.90			s35.65	37.60	38.50	39.50	s40.50	s41.50	s46.50	s47.55	48.50	51.10	54.90	s57.42	65.15	s66.85	68.85	s81.45	s83.25
	Yankee Non-Skid		s21.80		s26.75		30.75	s33.15			s39.60	41.75	42.80	43.85	s44.95	s46.00	s51.70	s52.80	53.90	56.75	61.00	s63.80	72.35	s74.25	76.50	s90.50	s92.50
CUPPLES	Rough Tread		qs18.00		qs25.00		qc30.00				qs37.00	qs39.00	qc40.00	c41.00				qc48.00	qc49.00	qc52.00	c56.00		c63.00		cs67.00		
	Red Tubes		3.95		4.75		4.95				6.40	6.60	6.75	6.95				8.40	8.65	8.80	8.95		10.50		10.95		
	Rhinos Inner Tubes		7.90		9.50		9.90				12.80	13.20	13.50	13.90				16.80	17.30	17.60	17.90		21.00		21.90		
CURTIS	Plain	18.20	18.50		24.70		27.60				32.25	33.45	34.65	35.85		38.10			44.15	45.50	46.75	48.00	54.30	55.80	57.30		
	Suction	20.70	20.90		27.25		33.00				39.75	41.15	42.35	43.90		46.20			51.30	52.90	57.40	59.10	65.25	66.60	71.30		
	Gray Tubes	3.35	3.45		4.00		4.15				5.40	5.65	5.80	5.90		6.15			7.35	7.55	7.75	8.00	9.00	9.30	9.40		
	Red Tubes	3.65	3.85		4.45		4.55				6.05	6.20	6.45	6.55		6.80			8.15	8.30	8.65	8.80	9.90	10.20	10.30		
DAYTON	Plain	qs21.65	qs20.70		qs25.20	qs27.95	29.65			s44.70	qs34.75	qc36.05	37.40	38.70	s39.85	41.10	s55.95		47.70	49.15	50.50	51.85	s58.70	s60.40	61.90	s80.80	s92.85
	Non-Skid	qs26.30	qs24.75		qs31.05	qs32.05	35.45				qs42.90	qc44.30	45.65	47.25	s48.80	51.55			55.40	58.75	63.80	65.15	s72.60	s75.40	77.20	s96.10	s111.80
	Red Tubes	3.65	3.75		4.80	4.95	5.15			5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80		8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
DEFIANCE	Plain	qs13.00	qs13.15		17.45	s17.70	21.30	22.55			s26.95	27.70	28.55	29.15	29.95	31.10			39.05	41.50	42.00			cs47.85	c49.65		
	Tiger Tread	qs14.35	qs14.60		19.20	s19.80	22.85	25.05			s29.05	31.08	31.55	32.85	33.28	33.70			42.25	45.70	47.25	48.45		cs51.15	c54.45		
	Gray Tubes	3.05	3.10		3.65	3.75	3.90	4.35			4.90	5.05	5.25	5.40	5.70	5.75			6.65	6.80	7.05	7.25		8.50	8.45		

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
DEFIANCE (Continued)	Red Tubes	3.15	3.45	.....	3.90	3.95	4.00	4.50	.....	4.95	5.00	5.40	5.55	5.70	5.85	6.10	.....	.....	7.10	7.25	7.40	7.65	.....	8.20	8.30	.....	.....
	Double Wall Tubes	4.13	4.20	.....	4.97	5.11	5.32	5.88	.....	.....	6.65	6.86	7.14	7.35	7.77	7.70	.....	.....	9.03	9.24	9.59	9.85	.....	11.55	11.48	.....	.....
DELION	Plain	16.10	18.00	19.40	22.80	24.15	26.45	28.00	33.15	35.55	31.15	33.15	35.45	37.45	38.35	40.35	46.90	48.00	50.75	51.37	51.90	53.45	59.90	61.20	62.85	80.95	83.80
	Non-Skid	18.00	19.35	21.00	26.45	27.60	29.00	29.75	39.25	40.00	35.20	36.85	39.65	40.95	42.90	44.05	52.25	53.35	54.30	55.55	57.25	59.60	65.70	67.60	70.25	89.35	92.65
	Red Tubes	3.50	3.50	3.90	4.15	4.45	4.55	4.85	5.10	6.10	5.60	5.80	6.10	6.25	6.40	6.60	7.40	7.50	7.60	7.75	8.00	8.20	9.00	9.25	9.45	10.25	10.50
DIAMOND	Smooth	14.50	14.10	18.90	18.35	19.30	21.45	25.05	26.65	29.85	28.15	28.70	30.05	30.70	35.05	36.00	38.95	40.05	41.30	43.25	43.95	50.30	49.35	55.90	52.25	78.45	70.85
	Squeegee	15.20	14.85	19.80	19.20	20.30	22.50	26.25	27.90	31.25	29.45	30.10	31.40	32.25	36.85	37.80	40.95	42.05	43.45	45.35	46.20	52.85	51.85	58.65	54.90	82.30	74.40
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	5.05	5.20	5.00	5.10	5.25	5.40	6.10	6.30	6.25	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	9.75	9.95
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	5.65	5.80	5.60	5.70	5.85	6.00	6.80	6.95	6.95	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	10.85	11.05
DOUBLE FABRIC	Xtra-Ply	16.35	qs17.45	.....	qs22.65	qs24.40	c26.70	.....	.....	.....	qs32.90	qc35.50	c37.30	c38.10	.....	c40.55	.....	.....	c48.15	c49.30	c51.50	c53.95	c63.20	.....	c66.85	.....	.....
	Duo-Cord	.....	qs21.45	.....	qs27.95	.....	c32.10	.....	.....	.....	.....	qc43.35	c44.70	c46.05	.....	.....	c54.35	c56.05	c57.85	.....	.....	.....	c71.75	.....	c75.80	.....	.....
	Brazil Gray Tubes	3.15	3.35	.....	3.80	3.85	4.05	4.15	4.35	.....	5.15	5.35	5.45	5.55	5.80	5.90	6.85	6.95	7.05	7.15	7.25	7.35	8.55	8.65	8.85	9.35	.....
DREADNAUGHT	Vacuum Red	.....	qs18.85	.....	qs23.70	qs23.70	c28.50	.....	.....	.....	qs34.70	c35.30	c37.10	c37.90	.....	cs39.95	.....	qc48.55	c49.20	c51.45	c52.25	cs54.65	c60.05	cs61.25	c63.50	.....	.....
	Ribbed Tread	.....	qs16.75	.....	qs21.70	qs22.95	c25.15	.....	.....	.....	qs30.20	c31.35	c32.55	c32.95	.....	cs36.20	.....	qc42.65	c43.85	c45.80	c46.55	cs48.95	c51.25	cs52.00	c54.30	.....	.....
	Super-Dreadnaught Red Tubes	.....	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	10.45	10.80
DRY CLIMATE	Plain	.....	13.05	.....	16.60	17.80	21.10	22.00	.....	.....	25.85	26.40	27.70	28.35	29.65	30.10	.....	.....	37.60	39.35	39.95	41.65	46.15	46.85	48.90	.....	.....
	Non-Skid	.....	.....	.....	19.40	20.90	23.10	25.75	.....	.....	30.25	30.90	32.45	33.15	34.65	35.20	41.30	42.65	44.00	46.00	46.70	48.75	57.70	58.50	61.10	.....	.....
	Red Tubes	.....	3.95	4.10	4.50	4.60	4.95	5.35	5.60	5.75	6.40	6.60	6.75	6.95	7.05	7.20	8.40	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
	Gray Tubes	.....	3.05	3.15	3.45	3.65	3.80	4.45	4.50	4.55	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
DUNLOP	Cross Groove	.....	22.95	.....	28.55	30.20	32.15	34.60	36.50	.....	38.55	42.10	44.30	46.40	48.60	51.30	52.35	53.35	54.35	57.70	58.30	60.40	64.35	67.05	69.70	78.50	.....
	Traction Non-Skid	.....	25.00	.....	33.80	35.55	36.75	39.40	42.50	.....	46.25	50.10	53.05	55.50	57.70	59.55	60.15	62.25	64.35	66.45	68.65	70.75	79.50	83.00	84.40	92.35	97.90
	Tubes	4.80	4.85	.....	6.15	6.25	6.40	7.20	7.50	.....	7.70	8.00	8.25	8.55	9.05	9.05	10.45	10.45	10.70	10.95	11.20	11.50	12.90	13.35	13.35	14.75	15.15
DUPLEX	Plain	13.65	14.55	15.60	18.95	19.55	19.55	21.95	.....	29.70	30.90	30.90	31.95	34.20	35.25	36.35	42.60	44.05	45.45	46.95	48.40	49.75	56.90	58.50	60.15	70.35	72.15
	Non-Skid	19.45	21.00	22.75	27.85	28.85	29.40	30.35	.....	38.40	39.55	41.25	42.70	44.05	46.70	46.15	52.95	53.05	54.70	56.45	58.05	59.75	67.20	68.50	69.60	89.25	92.50
	Red Tubes	3.60	3.85	4.10	5.15	5.30	5.45	5.75	.....	7.25	7.60	7.75	8.05	8.20	8.50	8.70	9.65	9.80	10.05	10.35	10.60	11.00	12.25	12.50	12.95	14.55	14.90
DURAL	Red Tubes	3.65	3.75	.....	4.55	4.70	4.85	5.10	.....	.....	6.05	6.20	6.50	6.75	6.95	7.10	.....	7.85	8.05	8.25	8.45	8.65	9.50	9.75	9.90	.....	.....
	Gray Tubes	2.80	2.85	.....	3.40	3.55	3.70	3.90	.....	.....	4.55	4.80	5.00	5.15	5.30	5.40	.....	6.30	6.40	6.60	6.85	7.00	7.60	7.80	8.05	.....	.....
EHMAN	Plain	13.80	13.40	.....	17.45	18.35	20.40	23.80	.....	.....	26.75	27.25	28.55	29.15	33.30	34.20	.....	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	.....	.....
	Track Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Worm Drive Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Wrapped Tread	15.15	14.80	.....	19.15	20.25	22.47	26.20	.....	.....	29.40	30.05	31.35	32.20	36.75	37.70	.....	41.95	43.35	45.25	46.10	52.70	51.70	58.50	54.75	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	5.05	.....	.....	5.30	5.40	5.55	5.70	6.45	6.60	.....	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	.....	.....
EMPIRE	Smooth Gray	qs15.20	qs16.10	.....	20.40	qs21.25	23.55	26.25	27.55	.....	31.45	32.05	33.45	34.00	35.45	35.70	.....	46.20	46.55	48.50	49.05	50.80	57.90	58.50	60.80	.....	.....
	Non-Skid Gray	qs16.00	qs16.95	.....	21.45	qs22.40	24.80	27.60	29.00	.....	33.10	33.70	35.20	35.80	37.30	37.55	48.75	48.60	49.00	51.05	51.65	53.45	60.95	61.60	64.00	.....	.....
	Gray Tubes	3.00	3.15	3.30	3.60	3.70	3.75	3.90	4.10	4.80	4.90	5.05	5.15	5.30	5.45	5.60	6.45	6.60	6.65	6.75	6.85	7.05	8.10	8.20	8.40	9.00	9.15
	Smooth Red	qs17.95	qs19.05	.....	24.90	qs26.10	28.55	32.45	34.10	.....	38.00	38.70	40.70	41.65	43.55	44.20	.....	56.50	55.55	57.95	60.10	61.30	64.75	65.70	68.60	.....	.....
	Non-Skid Red	qs18.75	qs20.00	.....	26.10	qs27.50	30.10	34.10	35.95	.....	40.00	40.80	42.85	43.70	45.85	46.60	58.20	59.45	58.45	61.00	63.35	64.55	68.20	69.20	72.20	.....	.....
	Red Tubes	3.45	3.65	3.85	4.05	4.20	4.20	4.65	5.15	5.35	5.55	5.65	5.90	6.05	6.20	6.40	7.65	7.80	7.90	8.15	8.35	8.50	9 50	10.00	10.10	10.95	11.10
ENDURANCE	Ball Bearing Non-Skid	.....	qs18.50	.....	qs23.75	.....	qc27.50	.....	.....	.....	s36.25	qc37.00	c38.75	c40.00	.....	.....	.....	qc51.50	qc53.00	qc55.50	c56.25	.....	c63.50	cs65.25	c67.25	.....	.....
	Gray Tubes	3.45	3.60	3.85	4.05	4.20	4.25	4.60	4.80	5.50	5.50	5.60	5.70	5.95	6.15	6.15	7.30	7.30	7.35	7.55	7.70	7.85	9.10	9.30	9.30	10.50	10.65
	Red Tubes	3.85	3.90	4.35	4.90	5.00	5.10	5.75	6.00	6.15	6.15	6.40	6.60	6.80	7.25	7.25	8.35	8.35	8.55	8.75	8.95	9.20	10.30	10.65	10.65	11.75	12.10
FALLS	Plain	22.50	23.60	.....	30.70	32.10	33.00	35.90	.....	.....	42.60	45.70	47.25	49.00	50.20	51.80	55.60	.....	59.10	60.20	62.50	64.45	75.45	77.05	78.60	.....	.....
	Ribbed and Neverslip Non-Skid	24.00	25.30	.....	32.80	34.40	35.30	38.50	.....	.....	45.40	48.90	50.25	51.85	53.25	54.85	58.30	60.50	62.50	63.80	44.70	68.00	79.65	81.30	82.90	98.50	99.50
	Extra Heavy Red Tubes	4.80	5.00	.....	6.80	7.05	7.20	7.50	.....	.....	8.95	9.20	9.45	9.70	9.90	10.20	11.25	11.50	11.85	12.15	12.45	12.75	13.95	14.30	14.55	16.40	17.10
FEDERAL	Plain	qs14.30	qs13.90	.....	qs18.05	qs19.10	s21.10	qc24.70	.....	.....	qs27.65	qc28.20	c29.60	c30.20	qc34.45	c32.20	.....	qc39.40	c40.65	c42.50	c43.20	c44.95	c48.50	.....	c51.45	.....	.....
	Traffik Tread	qs14.95	qs14.60	.....	qs18.90	qs20.00	s22.15	qc25.85	.....	.....	qs29.00	qc29.65	c30.90	c31.70	qc36.20	c33.80	.....	qc41.30	qc42.80	qc44.65	qc45.40	qc47.20	qc50.95	.....	c53.95	.....	.....
	Rugged Tread	qs16.85	qs16.40	.....	qs21.30	.....	s24.90	qc29.06	.....	.....	qs32.60	qc33.35	c34.75	c35.70	qc40.70	c38.00	.....	qc46.50	c48.15	c50.20	c51.05	c53.15	c57.30	.....	c60.70	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.95	4.70	.....	.....	4.85	5.05	5.05	5.30	5.65	5.65	.....	6.35	6.55	6.55	6.80	7.05	8.00	8.30	8.30	.....	.....
	Red Skin Tubes	3.70	3.45	.....	4.35	4.40	4.55	5.45	.....	.....	5.55	5.80	5.80	6.10	6.55	6.55	.....	7.25	7.50	7.50	7.85	8.10	9.20	9.50	9.50	.....	.....
FIRESTONE	Round Tread	13.50	14.00	18.25	17.90	19.55	21.10	23.80	30.00	31.90	27.85	28.35	30.00	30.45	31.65	37.90	39.80	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	83.20	89.25
	Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	34.20	37.50	31.50	32.05	33.90	34.50	36.30	43.40	44.55	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	95.30	101.35
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Triple Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c47.85	c49.10	c50.45	.....	.....	c53.90	c55.30	c56.75	c58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	F F Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c51.40	52.75	c54.20	.....	.....	c57.85	c59.40	c60.95	c62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
	Super Size Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.15	7.30	7.45	.....	.....	8.30	8.45	8.65	8.85	9.00	.....	10.25	.....	10.80	.....	.....
FISK	Plain	qs13.80	qs13.40	qs17.90	17.45	qs18.35	20.40	23.80	s26.10	s32.30	s26.75	27.20	28.55	29.15	33.30	37.60	qc.....	qc38.05	39.30	41.10	41.75	c50.15	c46.90	53.10	49.65	cs74.50	.....
	Gray and Black Non-Skid	qs14.50	qs14.10	.....	18.30	qs19.30	21.40	25.00	.....	s33.95	s28.00	28.60	29.85	30.65	35.00	39.45	qc38.50	qc39.95	41.30	43.10	43.90	c52.65	c49.20	55.70	52.10	cs78.20	cs70.65
	Red Non-Skid	.....	qs18.30	.....	22.90	qs24.15	26.75	.....	.....	.....	s33.65	34.40	35.85	36.75	.....	47.35	qc46.15	qc47.90	49.60	51.80	52.60	c63.30	c59.10	66.90	62.50	.....	cs84.80
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.75	4.75	4.95	4.95	5.15	5.50	5.50	6.15	6.15	6.40	6.40	6.65	6.90	7.80	8.10	8.10	9.25	9.45
	Red Tubes	.....	3.45	.....	4.30	.....	4.40	5.20	.....	5.45	5.45	5.70	5.70	5.95	6.35	6.35	7.10	7.10	7.30	7.30	7.65	7.90	8.95	9.30	9.30	.....	10.90
G & J	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Non-Skid	15.85	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
GENERAL	Plain	.....	16.90	.....	21.05	.....	26.20	29.45	.....	.....	34.20	34.70	36.80	37.45	38.85	39.40	.....	.....	46.10	48.30	50.25	53.45	59.40	61.00	61.30	.....	.....
	Non-Skid	18.35	19.55	.....	24.75	26.70	29.45	33.65	.....	.....	38.65	39.40	41.65	42.40	44.60	45.30	.....	52.20	53.65	56.45	57.25	59.70	66.70	69.45	70.40	.....	.....
	Gray Tubes	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	5.80	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	8.50	8.75	.....	10.20
	Red Tubes	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	5.40	6.60	6.90	7.00	7.35	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	10.30	10.55	.....	12.55
	Rib Tread	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	.....	qc55.30	qc56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc40.45	.....	.....	.....	.....	qc51.40	qc52.75	qc54.20	.....	.....	.....	qc59.40	qc60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
GILLETTE SAFETY	Plain	14.90	13.85	.....	17.95	.....	21.10	.....	.....	.....	28.20	28.70	30.05	30.50	.....	32.25	.....	.....	41.40	43.30	43.95	.....	50.70	56.25	52.35	.....	.....
	Ribbed	.....	15.60	.....	21.35	.....	24.10	.....	.....	.....	31.50	32.05	33.90	34.50	.....	36.90	.....	.....	46.80	48.65	49.20	.....	57.85	57.85	61.05	.....	.....
	5,000-Mile Non-Skid	18.35	19.50	.....	24.75	.....	29.45	.....	.....	.....	38.65	39.40	41.65	42.40	.....	45.30	.....	.....	56.20	59.15	60.00	.....	71.25	72.75	73.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	.....	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
	Gray Tubes	2.75	3.00	.....	3.75	.....	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	.....	8.00	8.15	8.30	.....	.....
	Hard Service Red Tubes	.....	3.70	.....	4.65	.....	4.90	5.35	.....	.....	6.00	6.05	6.15	6.30	6.55	6.55	.....	.....	8.10	8.25	8.40	.....	9.65	9.90	10.00	.....	.....
GLOBE	Plain	19.90	s19.55	24.65	25.45	s28.15	28.95	31.50	.....	36.40	34.50	34.90	36.60	38.35	38.75	39.60	43.75	qc45.60	47.25	48.70	50.10	51.50	57.80	59.70	61.10	79.50	81.10
	Good Grip Non-Skid	22.35	s22.25	27.35	28.15	s30.75	32.45	36.25	.....	40.10	38.10	38.75	40.45	41.20	42.90	43.25	47.50	qc50.80	53.05	56.15	59.55	61.60	66.50	67.85	72.60	90.65	97.25
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.75	.....	5.85	5.95	6.15	6.35	6.50	6.60	6.85	7.75	7.85	8.00	8.10	8.35	8.50	9.50	9.80	9.90	11.00	11.20
	Gray Tubes	3.05	3.25	3.50	3.85	3.95	4.00	4.20	.....	5.15	5.30	5.40	5.65	5.75	5.90	6.05	6.90	6.95	7.10	7.20	7.40	7.50	8.50	8.65	8.80	9.80	10.00
GOODRICH	Plain	13.80	13.40	17.95	17.45	18.35	20.40	23.80	25.30	28.35	26.75	27.25	28.55	29.15	33.30	34.20	37.00	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	74.55	67.30
	Safety Tread	14.45	14.10	18.80	18.25	19.30	21.40	24.95	26.50	29.70	28.00	28.60	29.85	30.65	35.00	35.90	38.90	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	78.20	70.70
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	6.00	5.95	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	9.25	9.45
	Brown Tubes	3.40	3.35	3.80	4.20	4.25	4.30	5.05	5.35	5.50	5.30	5.40	5.55	5.70	6.45	6.60	6.60	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	10.30	10.50
	S. S. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	37.60	.....	.....	.....	.....	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	89.65
	Q. D. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	39.35	.....	.....	.....	.....	50.05	51.35	52.75	.....	55.35	56.40	57.80	59.35	60.80	62.25	63.70	73.80	75.50	77.30	.....	93.70
	S. S. Silvertown Safety Tread	.....	.....	.....	.....	.....	39.50	.....	.....	.....	.....	50.25	51.60	53.00	.....	.....	56.65	58.10	59.60	61.05	62.50	.....	74.15	.....	77.60	.....	94.15
	Q. D. Silvertown Safety Tread	.....	.....	.....	.....	.....	41.30	.....	.....	.....	.....	52.60	53.95	55.40	.....	.....	59.25	60.70	62.30	.....	65.35	.....	77.50	.....	81.15	.....	98.40
GOODYEAR	Plain	.....	qs14.35	.....	q18.25	qs19.60	21.35	qc24.20	.....	.....	q28.45	c29.05	30.45	31.20	qc32.60	c33.10	qc38.85	qc40.05	41.35	c43.30	43.95	c45.80	c50.75	c51.55	c53.80	.....	.....
	All-Weather	.....	qs16.80	.....	q21.35	qs23.00	24.95	qc28.35	.....	.....	q33.30	c34.00	35.70	36.45	qc38.10	c38.70	qc45.45	qc46.90	48.40	c50.60	51.35	c53.65	c59.40	c60.30	c62.95	.....	c89.65
	Ribbed Tread Cord	.....	.....	.....	qc35.20	.....	qc37.60	qs40.05	.....	.....	qc46.20	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	c56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	c96.30
	All-Weather Cord	.....	.....	.....	qc37.85	.....	qc40.45	qc43.05	.....	.....	qc49.65	qc51.40	qc52.75	qc54.20	.....	.....	qc57.90	qc59.40	c60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
	Unusual Sizes—Plain Tread	.....	.....	.....	.....	.....	.....	cs29.30	.....	.....	.....	qs34.90	.....	.....	cs39.15	qs39.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs64.55	qc83.10	.....
	All-Weather	.....	.....	.....	.....	.....	.....	cs34.30	.....	.....	.....	qs40.85	.....	.....	cs45.80	qs46.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs75.50	qc97.25	.....
	Regular Tubes	.....	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
	Heavy Tourist Tubes	.....	3.95	.....	4.50	.....	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	9.25	10.50	10.75	10.95	11.70	11.90
GORDON	Lotraction Tread	.....	qs15.80	.....	qs20.20	.....	qc23.75	.....	.....	.....	qs31.30	qc31.95	qc33.50	qc34.30	.....	.....	.....	.....	.....	qc47.65	qc48.35	.....	qs56.85	.....	qs58.85	.....	.....
	Triangle Tread	qs15.60	qs16.75	.....	qs21.35	qs23.00	25.30	cs29.70	.....	.....	qs33.50	34.10	35.70	36.45	c38.10	39.75	.....	qc52.45	c48.40	49.95	50.50	c54.75	c57.70	cs58.50	61.10	.....	.....
	Gray Tubes	3.40	3.55	.....	4.05	4.30	4.45	4.80	.....	.....	5.75	5.95	6.10	6.25	6.35	6.50	.....	7.70	7.80	7.90	8.05	8.35	9.45	9.70	9.85	.....	.....
	Red Tubes	3.85	3.95	.....	4.50	4.75	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	7.05	7.20	.....	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
GRYPHON	Ribbed Skid	.....	s21.25	.....	s26.50	s27.50	30.50	.....	.....	.....	s36.75	38.00	39.25	40.50	42.00	44.50	.....	.....	47.75	50.75	55.25	56.50	63.00	65.50	67.00	.....	.....
	Non-Skid	.....	s22.25	.....	s28.00	s29.00	32.00	.....	.....	.....	s38.75	40.00	41.25	42.50	44.00	46.50	.....	.....	50.00	53.00	57.50	58.75	65.50	68.00	69.50	.....	.....
	Gray Tubes and Red Tubes	.....	3.50	.....	4.50	4.75	5.00	5.25	.....	.....	5.50	5.75	6.00	6.25	6.50	6.75	.....	7.50	7.75	8.00	8.25	8.50	9.25	9.50	9.75	.....	.....
HAMILTON	Cable Tread	s14.80	s15.85	.....	s20.50	s21.60	23.55	26.60	s28.20	s29.80	s31.50	32.10	33.70	34.35	36.10	36.70	38.30	s43.80	45.75	47.80	48.50	50.55	58.15	59.00	61.30	.....	77.90
	Pure Gum Tubes	2.85	2.90	.....	3.45	3.60	3.75	3.95	4.35	4.90	4.60	4.85	5.05	5.20	5.35	5.45	.....	.....	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	9.45
	Perfection Pink Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	4.95	5.60	5.50	5.65	5.90	6.15	6.30	6.45	.....	.....	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	10.80
HARDMAN SENIOR	Plain	.....	s20.75	s24.00	s25.20	s27.90	29.70	34.00	.....	.....	s36.00	37.10	39.10	40.40	41.85	43.90	s47.75	49.40	51.35	53.25	55.25	57.75	63.10	s65.25	67.00	s86.35	s89.50
	Non-Skid	25.00	s23.50	s27.00	s28.00	s31.00	33.10	37.25	.....	.....	s40.00	41.15	43.50	44.90	47.15	48.85	s54.15	56.05	58.20	60.35	62.50	64.25	71.70	s74.80	76.00	s95.50	s99.50
	Red Tubes	.....	3.95	4.35	5.00	5.10	5.25	5.85	.....	.....	6.30	6.50	6.75	6.95	7.30	7.40	8.40	8.50	8.70	8.90	9.20	9.35	10.45	10.75	10.90	12.50	12.75
HARDMAN JUNIOR	Plain	.....	s15.50	s19.50	s20.35	s21.50	22.85	26.00	.....	.....	s27.75	29.50	31.40	32.45	34.90	36.50	s42.35	43.45	45.10	46.20	48.25	50.00	54.20	s56.00	58.00	.....	.....
	Non-Skid	18.00	s16.75	s22.00	s21.50	s22.50	24.15	29.40	.....	.....	s29.00	30.25	32.45	34.00	36.00	38.00	s44.00	45.00	46.75	47.85	49.50	51.60	56.00	s58.00	60.00	.....	.....
	Gray Tubes	.....	3.75	.....	4.30	4.40	4.50	4.85	.....	.....	5.75	5.85	6.00	6.20	6.40	6.45	7.55	7.60	7.70	7.85	8.05	8.20	9.35	9.50	9.60	.....	.....
HARTFORD	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Hartford Anti-Skid	15.25	14.50	.....	18.80	10.80	21.85	28.45	.....	.....	28.85	29.35	20.80	31.50	28.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
HAWKEYE	Plain	13.42	14.47	.....	17.88	.....	21.12	.....	.....	.....	27.83	29.15	30.80	31.30	.....	33.28	.....	40.70	41.53	43.34	44.06	45.93	50.38	51.32	53.13	.....	.....
	Non-Skid	14.80	15.90	.....	19.97	.....	23.60	.....	.....	.....	31.52	32.12	33.83	34.54	.....	36.69	.....	44.39	45.49	47.41	47.91	49.72	55.88	56.82	58.53	.....	.....
	Ribbed Tread Non-Skid	19.47	20.96	.....	26.57	.....	30.75	.....	.....	.....	40.70	41.53	43.78	44.61	.....	46.59	.....	51.81	54.07	57.09	61.77	62.76	68.81	71.83	73.48	.....	.....
	Red Tubes	3.25	3.35	.....	4.00	4.25	4.05	4.35	.....	.....	5.40	5.55	5.75	5.90	6.00	6.10	.....	7.15	7.20	7.30	7.50	7.70	8.60	8.80	8.90	.....	.....
	Gray Tubes	2.80	2.90	.....	3.45	3.60	3.65	3.70	.....	.....	4.70	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.45	6.55	6.65	6.75	7.70	7.80	8.00	.....	.....
HENDRIE	Plain	16.10	16.65	18.00	19.90	21.30	22.30	24.95	.....	29.00	29.55	30.65	31.35	32.05	33.15	33.40	40.70	41.45	42.15	43.80	44.35	45.85	52.35	53.50	56.75	69.60	72.20
	Non-Skid	19.20	20.20	21.30	24.15	24.70	26.75	29.25	.....	33.05	34.20	35.10	36.25	37.05	38.05	38.65	46.55	47.25	48.05	51.60	55.30	54.20	61.90	62.45	63.75	78.40	85.25
	California Non-Skid	22.05	23.15	24.40	27.80	28.35	31.90	33.60	.....	37.95	39.35	40.30	41.70	42.55	43.85	44.50	53.50	54.40	55.20	59.30	60.10	62.95	71.10	71.70	73.30	90.15	98.00
	Hendrie Gray Tube	3.45	3.65	4.05	4.25	4.40	4.45	4.75	.....	5.80	5.90	6.05	6.25	6.45	6.55	6.70	7.65	7.80	7.85	8.00	8.25	8.35	9.40	9.65	9.80	10.80	11.00
	California Red Tube	4.35	4.40	4.50	5.30	5.35	5.40	5.70	.....	6.70	6.90	7.00	7.15	7.30	7.45	7.60	9.20	9.40	9.65	9.85	10.05	10.30	11.65	11.75	12.00	12.60	12.75
HIGHWAY	Non-Skid	qs14.85	qs14.30	.....	qs18.35	.....	c21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
HOOD	Plain	20.30	20.80	22.35	27.50	29.45	30.95	33.10	.....	.....	36.20	36.85	37.55	38.50	39.60	40.65	53.00	53.83	55.95	57.40	58.50	59.85	68.85	70.20	71.35	91.50	92.50
	Non-Skid	24.30	24.85	27.00	31.50	34.15	35.45	37.95	.....	.....	43.75	44.65	45.85	46.75	48.95	51.45	61.05	61.95	62.60	63.90	64.50	65.75	76.30	77.40	79.00	96.50	100.65

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
HOOD (Continued)	Puritan Plain	.....	qs15.20	.....	qs17.10	qs18.50	19.50	c22.00	.....	.....	qs27.50	c28.25	c29.00	c29.65	cs30.75	c31.85	.....	c36.85	c37.95	c39.35	c40.00	c41.55	c47.30	cs48.95	cs49.70	.....	.....
	Puritan Gripper Non-Skid	.....	17.20	.....	19.70	21.20	22.75	26.00	.....	.....	32.10	32.50	32.90	33.50	34.25	35.50	.....	43.45	44.40	45.90	46.50	47.85	55.70	57.40	58.50	.....	.....
	Hood Red and Gray Tubes	3.85	4.00	4.50	4.75	4.90	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.20	11.75
	Puritan Red and Gray Tubes	3.40	3.45	.....	4.05	4.20	4.40	4.80	5.20	5.40	5.15	5.25	5.35	5.50	5.90	6.30	6.85	6.95	7.05	7.15	7.25	7.60	8.30	8.45	8.60	10.00	11.00
HOWE	Ribbed Tread	.....	qs18.80	.....	qs22.50	.....	.....	.....	.....	.....	qs32.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs19.20	.....	.....	.....	.....	29.40	.....	.....	.....	.....	c36.80	c37.75	c39.90	cs40.50	c42.80	.....	qc46.25	c48.20	c50.25	c52.80	cs54.05	c60.00	cs62.50	c63.95	.....	.....
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.25	4.70	4.75	4.85	5.00	5.15	5.40	5.50	6.10	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	9.20	9.45
	Red Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.55	5.65	5.80	5.90	6.00	6.20	6.30	7.65	7.80	8.00	8.25	8.35	8.55	9.70	10.10	10.25	10.85	11.00
INDIANA	Plain	13.50	14.00	18.25	17.90	19.55	21.10	23.80	.....	.....	27.85	28.35	30.00	30.45	31.65	37.90	.....	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	.....	.....
	Button and Traction Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	.....	.....	31.50	32.05	33.90	34.50	36.30	43.40	.....	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	.....
	Brown Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	.....
KELLY-SPRINGFIELD	Plain	qs21.90	qs20.95	.....	25.45	s28.20	29.90	32.50	s42.00	s44.95	s35.00	36.30	37.65	38.95	40.10	41.35	s56.20	s46.35	47.95	49.40	50.75	52.10	58.95	60.65	62.15	s81.05	s93.10
	Driving Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs52.50	c43.70	c44.95	c46.20	c48.65	c51.05	c62 60	c53.45	c55.45	c58.05	c63.95	c65.10	c72.20	c75.55	c76.95	.....	cs100.60
	Kant-Slip Tread	qs26.55	qs25.00	.....	qs31.30	qs32.20	35.70	c38.80	.....	.....	s43.15	c44.55	c45.90	c47.50	c49.05	c51.80	c62.85	c53.70	c55.65	c59.00	64.05	c65.40	c72.85	75.65	77.45	cs96.35	cs112.05
	Red Tubes	3 65	3.75	4.00	4.80	4.95	5.15	5.45	5.85	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
KNIGHT	Blackstone Non-Skid	.....	15.85	.....	20.20	21.55	23.85	.....	.....	.....	31.85	32.40	34.25	34.85	.....	37.30	.....	42.15	42.50	44.20	44.70	.....	54.50	.....	57.35	.....	.....
	Knight Plain	.....	22.55	.....	27.95	30.05	30.80	33.45	.....	.....	37.20	38.45	.....	41.05	.....	43.25	.....	47.40	48.75	50.00	52.20	54.50	61.00	62.25	64.75	.....	.....
	Knight Non-Skid	.....	25.00	.....	31.30	32.30	35.70	38.80	.....	.....	43.15	44.55	45.90	47.50	.....	51.80	.....	53.70	55.65	59.00	64.05	65.40	72.85	75.65	77.45	96.35	112.05
	Blackstone Tubes	.....	3.10	.....	3.60	3.75	3.80	4.05	.....	.....	4.80	4.95	5.10	5.30	.....	5.55	.....	6.35	6.40	6.60	6.70	6.90	7.75	7.90	8.05	.....	.....
	Knight Red Tubes	.....	3.70	.....	4.60	4.65	4.80	.....	.....	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
KOKOMO	Plain	qs15.25	qs15.85	.....	qs20.60	.....	q23.80	.....	.....	.....	qs31.40	.....	c33.65	c34.35	.....	c36.70	.....	.....	c48.35	c48.40	c49.25	c51.25	.....	.....	c58.50	.....	.....
	Gridiron Non-Skid	qs16.00	qs16.65	.....	qs21.50	.....	q25.20	.....	.....	.....	qs33.10	.....	c35 25	c36.10	.....	c38 50	.....	.....	c48 75	c50 90	c51.60	c53.75	.....	.....	c61.50	.....	.....
	Standard Gray Tubes	2 90	3.05	3.25	3.60	3.80	3.85	4.05	4.25	.....	4.75	4.80	5.00	5.15	4.30	5.45	.....	.....	6.20	6.35	6.60	6.85	7.80	8.10	8.35	8.80	.....
	Standard Red Tubes	3.25	3.35	3.50	4.05	4.25	4.30	4.50	4.75	.....	5.30	5.40	5.50	5.65	5.95	6.10	.....	.....	7 00	7 10	7.35	7.60	8.65	8.80	9.00	9.70	.....
	Everlaster Gray Tubes	3.45	3.55	3.95	4.30	4.45	4.50	5.00	5.10	.....	5.60	5.65	5.85	6.05	6.20	6.45	.....	.....	7.35	7.55	7.80	8.05	9.15	9.30	9.50	10.85	.....
	Everlaster Red Tubes	3.75	3.90	4.45	4.80	4.95	5.05	5.25	5.65	.....	6.20	6.30	6.50	6.65	6.90	7.15	.....	.....	8.10	8.50	8.60	8.95	10.15	10.20	10.50	12.05	.....
LEE	Standard Plain	15.75	14.25	19.00	18.30	19.40	21.45	26.75	30.25	33.00	28.10	29.00	30.00	31.05	35.55	34.20	40.70	40.50	41.70	43.15	43.85	46.65	50.90	51.75	53.65	73.05	73.80
	Standard Non-Skid	16.50	15.70	21.70	20.15	21.35	23.60	29.85	33.40	36.50	30.90	31.90	33.00	34.15	39.35	37.60	44.10	44.55	45.85	47.45	48.25	51.30	56.00	56.80	59.00	88.00	88.75
	Puncture Proof Plain	26.95	26.90	26.80	33.60	34.50	35.75	40.85	43.25	43.65	41.05	44.75	46.80	48.35	52.85	53.75	53.25	54.35	56.75	58.85	60.05	62.25	71.45	72.50	73.50	81.60	83.85
	Puncture Proof Non-Skid	29.60	28.25	33.20	34.70	35.90	37.85	44.45	46.75	47.95	48.35	47.75	50.05	51.35	57.90	58.65	61.40	59.20	60.90	63.10	64.85	70.05	76.55	77.90	79.65	95.65	98.00
	Gray Tubes	3.10	3.05	3.40	3.75	4.00	4.10	4.55	4.80	4.95	5.00	5.10	8.25	5.40	5.80	6.00	6.50	6.15	6.25	6.45	6.65	6.90	7.80	7.95	8.10	9.25	9.45
	Red Tubes	3.40	3.35	3.80	4.20	4.35	4.45	5.05	5.35	5.50	5.45	5.55	5.70	5.90	6.45	6.50	7.20	6.80	7.00	7.15	7.35	7.65	8.70	8.85	8.95	10.30	10.50
McCREARY	Plain	14.75	15.35	18.90	19.15	22.20	23.80	27.05	.....	.....	31.10	31.55	33.45	34.05	.....	35.80	.....	42.50	43.90	46.00	46.55	48.60	57.65	.....	59.60	.....	.....
	Non-Skid	16.70	17.75	.....	22.50	24.25	26.75	30.60	.....	.....	35.15	35.80	37.85	38.55	.....	41.20	.....	49.70	51.10	53.75	54.55	56.85	64.75	.....	67.05	.....	.....
	Gray	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	.....	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	.....	8.75	.....	.....
	Red	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	6.40	6.60	6.90	7.00	.....	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	.....	10.55	.....	.....
McGRAW	Congress Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	.....	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	.....	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Congress Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Imperial Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Imperial Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	qs42.90	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	McGraw Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	McGraw Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Pullman Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Pullman Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	7.10	7.15	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	6.50	6.30	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
McNAULL	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32.83	.....	42.69	.....	.....	.....	.....	54.71	.....	58.06	.....	62.42	70.65	74.44	74.44	.....	100.57
	Tubes	.....	3.90	.....	5.00	.....	5.39	5.75	.....	.....	6.38	6.49	6.71	6.93	7.04	7.20	.....	8.42	8.69	8.85	9.18	9.46	10.39	10.61	11.00	12.59	12.81
MANSFIELD	Plain	14.75	14.45	18.95	19.40	20.95	22.15	25.75	.....	26.55	27.90	29.60	30.00	31.05	35.00	33.00	.....	.....	41.80	43.12	44.35	45.60	50.20	58.10	52.25	.....	.....
	Non-Skid	16.25	15.90	.....	21.35	23.15	24.45	28.35	.....	.....	30.80	32.60	33.00	34.10	38.50	36.30	.....	.....	46.00	47.45	48.75	50.20	55.30	.....	59.05	.....	.....
	Gray Tubes	3.00	3.05	3.55	3.75	3.90	4.10	4.75	.....	5.20	4.85	5.00	5.20	5.40	5.90	5.70	.....	.....	6.50	6.60	6.85	7.05	8.05	8.60	8.30	.....	.....
	Red Tubes	3.70	.....	.....	4.40	4.60	4.80	5.50	.....	6.20	5.90	6.05	6.20	6.35	7.00	6.80	.....	.....	7.95	8.10	8.30	8.55	9.60	10.30	9.90	.....	.....
MARATHON	Runner	qs14.95	qs15.70	.....	qs19.95	qs21.40	23.35	c26.90	.....	.....	qs31.85	c32.80	c33.75	c34.70	c36.10	c37.55	qc43.80	.....	c46.55	c47.95	c49.40	c51.25	c59.95	c60.10	c61.30	cs81.80	cs83.95
	Angle Non-Skid	qs15.75	qs16.50	.....	qs21.00	qs22.50	24.55	c28.30	.....	.....	qs33.50	c34.50	c35.50	c36.50	c88.00	c39.50	qc46.10	c47.55	c49.00	c50.45	c51.90	c53.95	c61.00	c63.25	c64.50	cs86.10	cs88.35
	Heavy Red Tube	3.10	3.30	.....	4.15	4.30	4.45	4.80	.....	.....	5.55	5.70	5.90	6.05	6.20	6.40	7.45	7.65	7.85	8.10	8.30	8.50	9.50	9.80	10.05	11.25	11.60
	Gray Tube	2.80	3.05	.....	3.75	3.90	4.05	4.40	.....	.....	5.00	5.15	5.35	5.50	5.65	5.85	6.60	6.80	7.05	7.25	7.50	7.70	8.50	8.80	9.05	10.15	10.50
	Cord Runner	.....	.....	.....	qs32.35	qs33.15	34.55	.....	.....	.....	qs42.50	c43.95	c45.15	c46.35	.....	.....	qc49.50	c50.80	c52.10	c53.35	c54.65	.....	c64.80	.....	c67.90	.....	cs82.30
	Cord Angle Non-Skid	.....	.....	.....	qs34.05	qs34.90	36.40	.....	.....	.....	qs44.75	c46.25	c47.50	c48.80	.....	.....	qc52.10	c53.45	c54.85	c56.15	c57.55	.....	c68.20	.....	c71.50	.....	cs86.65
MARION	Plain	qs13.20	qs14.30	.....	qs18.05	c20.00	c22.00	.....	.....	.....	qs28.60	.....	c30.80	c32.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs14.95	qs15.95	.....	qs20.40	.....	c23.90	.....	.....	.....	qs30.80	c31.50	c33.50	c34.25	c35.90	c36.50	.....	.....	c46.00	c47.30	c47.85	c49.50	c55.00	c56.65	c58.30	.....	.....
	Gray	2.90	3.00	.....	3.60	3.70	3.75	.....	.....	.....	4.75	5.00	5.20	5.30	5.45	5.55	.....	.....	6.40	6.60	6.75	7.10	8.10	8.20	8.25	.....	.....
	Red	.....	3.80	.....	4.50	4.75	4.85	.....	.....	.....	5.20	6.25	6.50	6.65	6.90	7.10	.....	.....	7.80	8.40	8.60	9.25	9.50	9.70	9.90	.....	.....
MASON	Plain Tread	14.10	14.90	.....	19.00	20.40	22.15	.....	.....	.....	29.10	29.60	31.35	31.85	.....	33.65	40.85	.....	41.75	43.25	43.95	45.70	50.90	51.75	53.65	.....	.....
	Ribbed Tread	14.85	15.95	.....	20.35	21.95	23.95	27.25	.....	.....	30.20	30.70	32.60	33.10	34.95	35.35	44.50	.....	45.05	46.80	47.45	49.25	56.10	57.95	59.95	.....	.....
	Non-Skid	15.40	16.50	.....	21.20	22.65	24.80	28.05	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	46.35	.....	46.75	48.60	49.15	51.05	59.95	61.05	63.10	.....	.....
	Gray Tubes	3.15	3.20	.....	3.80	3.95	4.15	4.35	.....	.....	5.05	5.35	5.55	5.70	5.90	6.00	7.05	.....	7.15	7.35	7.65	7.80	8.50	8.70	8.95	.....	.....
	Red Tubes	3.65	3.75	.....	4.55	4.70	4.85	5.10	.....	.....	6.05	6.20	6.50	6.75	6.95	7.10	7.85	.....	8.05	8.20	8.45	8.65	9.50	9.75	9.90	.....	.....

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
MICHELIN	Plain Tread	qs14.95	qs15.60	.....	qs21.50	qs22.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Universal Tread	.....	.....	.....	s22.50	.....	c25.40	c27.10	.....	.....	s31.50	c35.15	c35.40	c36.65	cs38.25	c39.80	qc44.75	.....	c47.60	c50.10	c51.15	cs52.95	c58.40	cs59.80	c60.50	.....	.....
	Tubes	3.55	3.70	.....	.....	3.70	4.40	4.80	.....	5.55	5.10	5.80	5.30	6.20	5.60	6.65	7.60	6.80	8.00	7.20	8.45	7.70	9.70	10.10	10.25	11.30	11.30
MOHAWK	Plain	qs18.70	qs19.65	.....	24.00	qs26.55	28.05	c30.65	.....	.....	qs35.35	c36.50	37.55	38.90	c40.20	42.45	.....	c45.70	47.85	49.85	52.60	c53.80	c59.65	s62.00	c63.45	cs78.95	.....
	Non-Skid	qs22.55	qs23.70	.....	30.00	qs31.10	34.45	c37.55	.....	.....	qs41.60	43.10	c44.20	45.90	c47.45	50.15	.....	c54.05	56.45	58.90	61.85	c63.35	c70.35	s73.35	75.00	cs93.10	cs96.65
	Ribbed Tread	.....	qs21.10	.....	qs25.95	.....	qc30.35	.....	.....	.....	qs38.45	qc39.65	qc40.85	c42.05	.....	.....	.....	.....	c51.65	qc53.85	c56.95	.....	c64.90	.....	c68.45	.....	.....
	Pure Gum and Red Tubes	3.40	3.55	.....	4.55	4.70	4.90	5.20	.....	.....	5.75	5.85	6.10	6.25	6.35	6.55	7.35	7.65	7.85	8.00	8.25	8.60	9.35	9.65	9.95	11.40	11.60
	Keaton	.....	.....	.....	qs31.55	.....	qc36.35	.....	.....	.....	qs43.85	qc45.40	qc46.60	qc48.35	.....	.....	qc55.55	.....	c60.00	qc61.10	c64.45	.....	c74.45	.....	c78.05	.....	.....
MONARCH	Gray Tubes	3.15	3.35	.....	4.15	4.20	4.25	.....	.....	.....	5.25	5.35	5.50	5.65	.....	6.10	.....	6.80	6.90	7.15	7.35	7.60	8.60	8.70	8.95	.....	.....
	Red Tubes	3.45	3.70	.....	4.65	4.70	4.75	.....	.....	.....	5.85	5.95	6.10	6.30	.....	6.75	.....	7.50	7.75	7.90	8.10	8.45	9.60	9.75	9.85	.....	.....
NABOB	Plain	qs19.70	qs18.85	.....	s22.90	qs25.40	26.90	c29.25	.....	.....	q31.50	c32.65	c33.90	c35.05	c36.10	c37.20	.....	c41.70	c43.15	c44.45	c45.70	c46.90	c53.05	c54.60	c55.95	c72.95	cs83.85
	Safety Traction Non-Skid	.....	qs22.50	.....	s28.15	qs29.05	32.15	c34.90	.....	.....	q38.85	c40.10	c41.30	c42.75	c44.15	c46.60	.....	c48.35	c50.10	c53.10	c57.65	c58.85	c65.55	c68.10	c69.70	c86.70	cs100.80
	Red Tubes	3.45	3.55	.....	4.55	4.70	4.90	5.20	.....	.....	5.80	5.90	6.10	6.30	6.40	6.55	.....	7.65	7.90	8.05	8.35	8.60	9.45	9.65	10.00	11.45	11.65
NASSAU	Plain	12.85	13.20	14.60	17.10	18.25	19.95	23.05	22.90	24.75	26.25	26.25	28.20	28.80	31.65	31.00	33.45	38.90	38.45	40.40	40.95	42.75	45.35	49.65	48.75	60.70	63.70
	Non-Skid	14.40	14.85	16.50	18.65	20.70	22.40	26.05	23.60	27.90	29.50	30.20	31.65	32.40	35.60	34.65	37.65	43.70	43.35	45.40	46.10	48.15	51.30	55.25	54.80	69.45	72.95
	Nassau Gray Tubes	.....	.....	3.45	3.85	3.90	3.95	4.60	4.90	5.05	4.85	4.95	5.15	5.25	5.90	5.60	6.60	6.25	6.35	6.65	6.80	7.05	7.95	8.75	8.35	9.40	9.60
NATIONAL	Non-Skid	.....	qs18.66	.....	qs23.33	.....	c30.00	c37.33	.....	.....	qs34.99	c36.40	c37.80	c39.20	.....	c42.00	.....	qc53.33	c53.33	c54.66	c56.00	qc59.33	qc68.60	qc70.00	c70.00	.....	.....
	Red Tubes	4.33	4.46	.....	5.66	6.00	6.33	6.66	6.98	6.98	7.33	7.66	8.09	8.33	8.66	9.33	.....	9.69	9.85	10.08	10.40	10.77	12.00	12.66	13.33	14.66	15.33
NEEDHAM	Plain	qs12.00	qs13.00	.....	16.50	17.50	19.25	c21.65	.....	.....	25.75	c26.35	c27.65	c28.15	c29.30	c29.75	.....	c36.25	c37.50	c39.20	c39.70	c41.20	c44.60	c45.20	c46.90	cs64.95	cs66.55
	Non-Skid	.....	.....	.....	19.00	19.90	22.10	c24.75	.....	.....	29.85	c30.30	c31.70	c32.25	c33.60	c34.05	.....	c42.30	c43.20	c44.95	c45.45	c47.20	c51.10	c51.75	c53.75	cs74.40	cs76.25
	Tubes	2.80	2.90	.....	3.30	3.40	3.45	3.60	.....	.....	4.55	4.70	4.85	4.95	5.05	5.15	.....	6.10	6.20	6.30	6.40	6.60	7.55	7.70	7.85	8.45	8.55
NEWCASTLE	Plain	.....	14.75	.....	19.20	21.10	22.45	23.50	.....	.....	29.45	29.95	31.40	32.00	36.60	37.60	.....	.....	43.15	45.20	45.90	52.45	51.55	58.40	55.60	.....	.....
	Non-Skid	.....	16.30	.....	21.25	23.90	24.50	26.60	.....	.....	30.80	31.50	32.80	33.70	38.50	39.50	.....	.....	45.40	47.40	48.25	55.20	54.10	61.25	57.35	.....	.....
	Shenango Non-Skid	.....	.....	.....	28.15	.....	32.15	qc23.15	.....	.....	.....	.....	c41.30	c47.25	.....	.....	.....	.....	.....	c53.10	c57.65	.....	c65.55	.....	cs58.90	.....	.....
	Pure Gum Gray Tubes	.....	3.20	.....	4.10	4.25	s4.40	4.70	.....	.....	5.20	5.30	5.50	5.65	5.75	5.90	.....	.....	7.10	7.25	7.50	7.75	8.50	8.70	9.00	.....	.....
NORWALK	Plain	.....	s19.65	.....	s25.45	.....	.....	.....	.....	.....	.....	.....	.....	cs40.75	.....	.....	.....	.....	.....	.....	s54.80	.....	.....	.....	cs63.85	.....	.....
	Non-Skid	.....	s20.70	.....	s26.75	s28.25	c30.75	.....	.....	.....	s39.15	c39.85	c41.90	c42.85	.....	cs45.55	.....	.....	c54.25	c56.65	c57.50	cs59.90	c63.35	cs64.20	c67.10	.....	.....
	Gray Tubes	3.30	3.35	3.95	4.15	4.25	4.40	5.20	5.30	.....	5.40	5.55	5.70	5.85	6.25	6.30	7.15	.....	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.75	6.00	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
ORVILLE	Non-Skid	14.10	qs15.25	.....	qs22.10	.....	22.80	.....	.....	.....	qs31.75	37.70	38.20	38.55	.....	39.80	.....	.....	.....	54.75	55.20	.....	.....	.....	66.95	.....	.....
	Gray	2.95	3.05	.....	3.45	.....	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	.....	6.60	6.65	6.75	7.10	7.25	8.10	8.25	8.40	.....	.....
	Pure Gum and Red Special	3.90	4.10	.....	4.70	.....	4.85	.....	.....	.....	6.45	6.60	6.75	6.90	7.10	7.25	.....	8.50	8.65	8.85	9.00	9.20	10.55	10.70	10.90	.....	.....
PALMER	Tubes	.....	6.35	.....	6.60	.....	7.00	.....	.....	.....	8.45	8.80	9.15	9.45	9.80	10.10	.....	11.10	11.40	11.75	12.25	.....	13.60	13.80	14.15	.....	.....
PARA-BALL	Plain	12.40	12.55	15.30	16.30	17.15	18.90	24.70	.....	27.06	24.95	25.45	26.65	27.30	32.90	29.65	.....	.....	36.75	38.40	39.00	40.60	43.85	51.15	46.45	.....	.....
	Non-Skid	13.05	13.20	16.30	17.10	18.05	19.85	25.85	.....	29.70	26.20	26.75	28.00	28.65	34.55	30.45	.....	.....	38.60	40.30	40.95	42.60	46.00	53.70	48.80	.....	.....
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.75	5.50	.....	.....	6.25	6.45	6.65	6.85	7.80	8.60	8.10	.....	.....
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05	.....	5.50	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	.....	.....
PEARCE	Morton Plain	11.00	11.85	.....	15.35	16.20	17.65	20.00	.....	.....	24.00	24.95	25.20	25.75	26.95	27.35	33.10	34.10	34.20	35.75	36.20	39.85	43.95	44.55	45.30	.....	.....
	Non-Skid	12.00	12.85	.....	16.95	18.00	19.65	22.40	.....	.....	27.10	27.90	28.50	29.50	30.20	31.10	36.00	38.00	39.00	40.15	41.40	42.00	47.20	48.50	50.00	.....	.....
	Germantown Cord Plain	.....	17.50	.....	21.95	22.25	24.00	39.00	.....	.....	33.15	34.75	35.95	36.10	40.00	43.50	38.15	45.25	46.75	48.75	50.50	52.00	56.50	.....	58.15	.....	.....
	Non-Skid	.....	18.25	.....	23.75	25.00	27.30	41.50	.....	.....	36.35	37.10	38.95	39.70	42.35	49.00	45.00	50.20	51.90	54.25	55.00	57.30	63.80	.....	64.75	.....	.....
	Red Tubes	3.25	3.45	.....	3.95	4.10	4.25	4.50	.....	.....	5.35	5.45	5.75	5.95	6.20	6.40	6.50	6.75	7.45	7.55	7.80	8.05	9.00	9.20	9.30	.....	.....
PEERLESS	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	36.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	.....	.....	.....	62.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.50	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Red Tubes	.....	3.40	.....	3.95	4.15	4.20	.....	.....	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.25	7.40	7.55	.....	.....	.....	9.10	.....	.....
PENNSYLVANIA	Bar O Circle	12.80	13.45	.....	17.60	19.50	20.65	24.00	.....	.....	27.00	27.40	28.70	29.40	33.50	34.45	.....	38.40	39.70	41.40	42.05	48.15	47.35	53.60	50.10	65.15	67.80
	Ebony	14.05	14.55	19.25	18.55	19.80	21.90	25.00	31.65	34.75	29.20	29.70	31.40	32.00	33.65	34.20	41.30	43.00	43.30	45.05	45.55	47.30	55.55	56.55	58.45	70.90	73.85
	Vacuum Cup	15.60	16.10	21.35	20.60	22.00	24.30	27.75	35.20	38.65	32.40	33.00	34.90	35.55	37.40	38.00	45.90	47.75	48.10	50.05	50.60	52.55	61.70	62.85	64.95	78.75	82.00
	Ton-Tested Gray Tubes	2.80	2.90	3.15	3.40	3.55	3.70	4.05	4.40	4.90	4.95	5.05	5.25	5.45	5.55	5.75	6.50	6.65	6.70	6.80	6.95	7.25	8.15	8.25	8.40	8.80	9.00
PERFECTION	Plain	17.70	18.00	.....	21.70	23.05	25.70	27.80	.....	.....	30.00	31.00	32.00	33.10	34.20	35.30	38.20	39.40	40.65	41.80	43.10	44.25	50.10	51.30	52.80	70.20	73.60
	Non-Skid	20.85	21.05	.....	26.60	27.55	30.60	33.00	.....	.....	36.90	38.10	39.20	40.45	41.75	43.10	.....	46.00	47.60	50.00	52.40	54.60	62.10	64.30	65.70	81.70	83.40
	Gray Tubes	3.20	3.30	3.50	4.20	4.35	4.50	4.80	5.10	5.25	5.35	5.45	5.65	5.80	5.90	6.05	6.85	7.10	7.30	7.45	7.70	7.95	8.75	8.95	9.25	10.55	10.75
	Red Tubes	3.40	3.55	3.70	4.50	4.60	4.85	5.30	5.60	5.65	5.75	5.85	6.10	6.25	6.35	6.50	7.45	7.60	7.80	7.95	8.20	8.45	9.30	9.50	9.80	11.10	11.35
PHARIS	Plain	13.10	13.85	17.50	17.90	18.65	20.55	22.90	.....	.....	27.60	28.05	29.25	29.80	31.00	31.50	45.40	.....	40.00	41.55	42.10	43.55	47.25	47.85	49.70	.....	.....
	Non-Skid	.....	14.85	.....	19.15	19.95	22.00	24.60	.....	.....	29.50	30.05	31.40	31.90	33.20	33.75	47.75	42.20	42.80	44.50	45.00	46.65	50.60	51.30	53.15	83.05	73.70
	Gray Tubes	3.15	3.35	3.45	3.75	3.80	3.95	4.15	.....	.....	5.25	5.35	5.45	5.55	5.80	5.90	6.75	6.90	7.00	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.70
	Red Tubes	3.50	3.65	3.75	4.20	4.25	4.30	4.70	.....	.....	5.80	5.90	6.10	6.20	6.40	6.50	7.60	7.70	7.75	7.85	8.10	8.25	9.40	9.70	9.80	10.50	10.65
PORTAGE	Plain	s14.00	s15.10	s16.75	s19.60	s20.70	22.45	25.50	s27.00	s28.45	s30.05	30.60	32.10	32.85	34.35	35.00	s43.10	s44.55	43.65	45.75	46.40	48.30	52.20	s53.00	55.35	s79.70	.....
	Daisy Non-Skid	s16 20	s17.45	s19.30	s22.45	s23.70	25.90	29.35	.....	s32.80	s34.45	35.15	36.95	37.75	39.55	40.30	.....	51.15	50.25	52.50	53.35	55.60	60.05	s61.00	63.50	s87.70	s89.55
	Gray or Red Tubes	3.20	3.45	3.75	4.20	4.30	4.45	4.75	4.95	5.50	5.65	5.90	6.10	6.25	6.45	6.60	7.35	7.50	7.65	7.80	8.10	8.25	9.05	9.30	9.40	10.25	10.40
PORTER	Giant	qs15 00	qs16.45	.....	qs21.50	qs22.65	24.35	c26.50	.....	.....	qs31.65	c32.35	c33.30	c34.35	c35.25	c36.30	qc44.00	c45.25	c46.25	47 70	c48.80	c50.00	c56.10	cs57.20	c59.25	.....	.....
	Non-Skid	qs16 00	qs17.55	.....	qs22.85	qs24.25	26.30	c27.95	.....	.....	qs34.95	c35.45	c36.60	c37.40	c39.45	c40.00	qc47.75	c49.00	c49.75	51.15	c52.55	c53.90	c59.95	cs61.60	c62.95	.....	.....
	Gray Tubes	2.85	3.00	.....	3.60	3.70	3.75	3.95	.....	.....	4.75	4.95	5.05	5.25	5.45	5.60	6.20	6.35	6.50	6.60	6.75	6.95	7.85	8.00	8.15	.....	.....
	Red Tubes	3.15	3.40	.....	3.95	4.10	4.20	4.40	.....	.....	5.30	5.45	5.65	5.85	5.95	6.15	7.00	7.15	7.25	7.35	7.50	7.75	8.75	8.90	9.00	.....	.....
QUAKER	Plain	s18.40	s19.45	s21.00	24.30	s25.45	29.00	31.20	.....	.....	s36.35	36.85	38.40	39.05	c40.75	41.40	qs49.50	.....	53.00	c55.00	55.70	c57.80	c62.70	63.35	c65.90	s85.60	cs89.15
	T.T.T. Non-Skid	s19.80	s21.45	s23.30	27.00	s28.05	32.00	34.80	.....	.....	s40.20	41.00	42.65	43.45	c45.30	46.00	qs52.10	.....	55.80	c58.00	58.60	c60.70	c65.95	66.70	c69.30	cs90.20	cs93.90
	Gray Tubes	3.20	3.35	3.50	3.75	3.95	4.00	4.20	4.35	5.00	5.10	5.40	5.50	5.60	5.80	5.90	6.80	7.00	7.05	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.85
	Red Tubes	3.50	3.70	3.90	4.15	4.35	4.40	4.60	4.85	5.50	5.55	5.95	6.05	6.15	6.40	6.50	7.55	7.70	7.75	7.85	8.00	8.20	9.40	9.50	9.80	10.40	10.90

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
RACINE	Plain	14.20	15.20	17.70	18.70	19.75	21.75	26.25	28.45	30.00	28.70	29.25	31.25	32.05	32.90	33.45	39.60	40.45	41.75	42.35	43.75	46.15	51.50	53.00	54.50	68.95	71.25
	Country Road	16.55	17.75	20.85	21.55	22.60	25.50	28.75	33.00	35.15	33.00	34.75	36.80	37.35	37.70	38.05	47.50	48.40	49.10	51.35	52.15	54.20	62.00	63.50	65.00	81.40	83.60
	Ribbed Cord	.....	.....	.....	.....	.....	39.80	.....	.....	.....	48.80	50.50	51.90	53.25	.....	.....	56.95	58.35	59.95	61.35	62.90	.....	74.60	76.30	78.00	92.50	94.60
	Non-Skid Cord	.....	.....	.....	.....	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.35	65.40	67.00	.....	79.40	81.40	83.20	98.60	100.85
	Gray Tubes	2.85	3.00	3.25	3.50	3.60	3.75	3.90	4.15	4.60	4.70	4.90	5.00	5.20	5.40	5.50	6.20	6.35	6.45	6.55	6.75	6.90	7.85	7.95	8.10	8.45	8.65
	Red Tubes	3.40	3.70	3.95	4.05	4.30	4.40	4.60	4.85	5.40	5.50	5.65	5.95	6.10	6.25	6.50	7.20	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	9.90	10.00
RACINE HORSESHOE	Plain	qs16.00	qs16.50	qs17.50	20.50	qs21.00	22.50	23.50	.....	qs28.50	qs26.50	28.50	29.00	29.50	31.00	31.50	qc36.50	qc36.50	36.50	38.00	39.00	40.00	44.00	45.00	46.00	cs65.00	cs66.00
	Non-Skid	qs17.00	qs17.50	qs19.50	21.50	qs22.00	24.00	27.00	.....	qs32.50	qs31.00	31.50	32.00	32.50	34.50	35.50	qc40.00	qc41.00	42.00	43.00	44.00	45.00	51.00	52.00	52.50	cs69.00	cs70.00
	Cord Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc46.50	qc47.50	48.50	.....	.....	.....	qc55.50	56.50	57.50	58.50	.....	68.50	.....	70.50	.....	cs88.50
	Gray Tubes	3.00	3.05	3.40	3.75	3.80	3.85	4.00	.....	4.70	4.75	4.85	5.00	5.15	5.45	5.50	6.15	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	8.75	9.25
	Red Tubes	.....	3.40	.....	4.25	4.35	4.45	.....	.....	.....	5.45	5.50	5.60	5.75	.....	6.25	.....	.....	7.50	7.75	7.80	7.90	8.80	8.95	9.25	9.50	9.75
RECORD	Ribbed Tread	.....	qs14.30	.....	qs18.35	.....	qc21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
REPUBLIC	Plain	qs14.15	qs15.20	qs19.30	19.30	qs20.75	22.50	25.65	s32.60	s34.45	s30.05	30.70	32.25	32.95	34.45	35.00	41.05	c42.30	43.75	45.80	46.40	48.35	53.65	54.35	56.85	s79.05	s78.25
	Staggard Non-Skid	qs16.60	qs17.70	qs22.50	22.55	qs24.40	26.40	29.95	s38.40	s40.25	s35.20	35.90	37.70	38.50	40.30	40.90	48.10	c49.50	51.15	53.60	54.30	56.60	62.75	63.65	66.55	92.50	89.00
	Gray Tubes	2.90	2.95	3.20	3.45	3.60	3.75	4.15	4.40	4.90	5.05	5.20	5.35	5.55	5.70	5.85	6.55	6.75	6.80	6.95	7.05	7.35	8.25	8.40	8.50	8.95	9.10
	Blackline Red Tubes	3.35	3.55	3.85	4.15	4.35	4.40	4.65	4.90	5.45	5.60	5.70	5.95	6.20	6.40	6.50	7.30	7.30	7.60	7.70	7.90	8.15	9.15	9.30	9.50	9.90	10.20
REVERE	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Anti-Skid Casings	15.25	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
REYNOLDS	Plain	.....	17.50	.....	21.90	.....	24.90	27.50	.....	.....	31.60	33.90	35.10	36.10	37.70	38.80	44.55	45.65	47.60	48.85	49.60	49.90	57.50	58.90	59.75	70.30	72.80
	Non-Skid	.....	24.40	.....	29.80	.....	31.60	34.65	.....	.....	40.10	41.45	42.70	44.60	45.70	46.80	54.80	55.90	57.75	58.45	59.70	60.90	67.70	68.50	69.75	90.50	93.25
	Para Tubes	.....	3.75	.....	5.25	.....	5.50	6.00	.....	.....	7.25	7.50	7.50	8.00	8.00	8.50	9.50	10.00	10.00	10.00	10.50	10.75	10.00	11.50	12.50	13.75	14.75
SAVAGE	Plain	qs12.00	qs12.65	16.45	qs16.05	qs16.85	18.40	20.45	c25.75	s26.65	qs23.80	24.70	25.60	26.05	27.25	28.50	.....	c34.90	c36.35	c37.60	c38.20	c39.40	c42.75	c43.25	c45.00	cs67.40	cs59.90
	Non-Skid	qs14.20	qs15.20	19.80	qs19.30	qs20.25	22.00	24.75	c29.80	s31.25	qs27.85	28.30	29.30	29.85	31.30	32.80	.....	c39.20	c41.40	c43.15	c43.95	c46.30	c46.45	c49.45	c51.15	cs77.10	cs68.20
	Grafinite Tubes	3.15	3.25	3.50	3.95	4.10	4.25	4.50	4.90	5.20	5.15	5.35	5.40	5.45	5.55	5.65	.....	6.55	6.80	6.90	7.15	7.30	8.05	8.30	8.40	9.90	10.05
SCHAVOIR	Gray Tubes	3.05	3.10	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	5.50	6.50	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	10.00	9.45
	Red Tubes	3.10	3.35	3.80	4.20	4.25	4.30	5.00	5.35	5.50	5.30	5.40	5.55	5.70	6.00	6.10	7.20	6.80	7.00	7.15	7.35	7.65	8.60	8.70	8.95	11.10	10.50
	Jumbo Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.70	6.90	7.05	7.15	7.35	7.50	.....	8.40	8.80	9.05	9.20	9.40	10.90	11.10	11.25	.....	13.15
SEMPLE	Semco Red Tubes	3.60	3.75	3.90	4.50	4.60	4.75	5.05	.....	.....	6.05	6.20	6.40	6.60	6.75	6.95	7.95	8.20	8.35	8.50	8.70	8.90	9.85	10.05	10.35	11.00	11.30
SOUTHERN	Plain	qs12.80	qs13.20	.....	q17.00	qs18.10	20.10	c22.50	.....	.....	.....	qc27.25	c28.40	c29.00	c30.00	c30.45	.....	.....	.....	c41.10	c41.80	c43.10	.....	qc50.00	c51.70	.....	.....
	S Non-Skid	.....	qs14.70	.....	q19.50	.....	22.60	.....	.....	.....	28.70	qc30.10	c31.45	c32.20	.....	c33.65	cs42.60	.....	qc44.45	c46.10	c46.65	c48.25	qc54.85	.....	c57.65	.....	.....
	Red Tubes	3.45	3.70	.....	4.25	4.35	4.40	4.60	.....	.....	5.85	6.00	6.20	6.30	6.45	6.65	7.55	.....	7.75	7.90	8.00	8.20	9.15	9.30	9.45	.....	.....
SPEEDWAY	Non-Skid	.....	qs18.66	.....	qs23.33	.....	c30.00	c37.33	.....	.....	qs34.99	c36.40	c37.80	c39.20	.....	c42.00	.....	qc53.33	c53.33	c54.66	c56.00	qc59.33	qc68.60	qc70.00	qc70.00	.....	.....
	Red Tubes	4.33	4.46	.....	5.66	6.00	6.33	6.66	6.98	6.98	7.33	7.66	8.00	8.33	8.66	9.00	.....	9.69	9.85	10.08	10.40	10.77	12.00	12.66	13.33	14.66	15.33
STANDARD FOUR	Super Tread	14.10	14.70	.....	18.70	20.45	22.10	.....	.....	.....	29.10	29.65	31.35	31.85	.....	.....	.....	.....	43.65	45.20	45.95	47.80	53.20	.....	56.05	.....	.....
	Non-Skid	15.10	15.70	.....	20.00	.....	23.60	.....	.....	.....	31.55	32.10	33.90	35.40	.....	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	.....	63.10	.....	.....
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	10.80
STAR	Ribbed Tread	.....	22.00	.....	qs26.50	.....	c30.45	.....	.....	.....	.....	qc39.20	qc40.50	c41.75	.....	.....	c48.90	qc50.50	c52.10	c53.70	c55.30	.....	c63.85	cs66.05	c68.25	cs86.00	.....
	All Star Non-Skid	.....	.....	.....	qs29.00	.....	c32.10	.....	.....	.....	.....	qc41.00	qc42.25	c43.70	.....	c46.40	c50.25	qc51.85	c53.50	c55.00	c56.60	cs58.20	c66.00	cs68.20	c70.40	cs88.50	cs94.00
	Pure Gum Tubes	.....	3.65	.....	4.70	4.90	5.10	5.40	.....	.....	5.95	6.10	6.30	6.45	6.65	6.80	7.60	7.80	8.00	8.20	8.45	8.65	9.80	9.65	10.00	11.60	11.65
STERLING	Sterling High Bar Non-Skid	qs17.46	q20.80	.....	qs26.67	28.32	cs29.81	.....	.....	.....	34.76	c43.64	c45.10	c46.55	.....	c49.46	s58.19	c59.65	c61.10	c62.56	c64.00	c65.46	c72.73	c74.20	c77.10	s81.46	s84.38
	Sterling Seamless Red Tubes	3.71	3.97	4.28	5.40	5.50	5.66	6.05	6.31	6.29	6.47	6.59	6.83	7.02	7.14	7.38	8.11	8.40	8.65	8.89	9.13	9.44	10.46	10.70	10.89	12.46	12.83
STRONGHOLD	Plain	.....	17.20	.....	22.05	23.50	25.45	28.55	.....	.....	32.60	33.30	34.65	35.35	37.10	37.70	.....	41.15	42.35	43.70	44.90	46.15	52.30	53.85	55.30	.....	.....
	Stronghold Non-Skid	.....	18.85	.....	24.15	25.45	27.75	31.25	.....	.....	35.70	36.25	37.95	38.70	40.60	41.15	45.50	47.10	48.75	50.35	54.20	56.60	60.70	61.45	63.90	.....	.....
	Gray Tubes	.....	3.60	.....	4.40	4.45	4.55	4.85	.....	.....	5.90	6.05	6.30	6.50	6.70	6.90	7.70	7.90	8.05	8.20	8.35	8.60	9.65	9.80	10.05	.....	.....
	Red Tubes	.....	3.95	.....	4.80	4.85	5.00	5.20	.....	.....	6.55	6.75	6.95	7.10	7.30	7.55	8.25	8.40	8.55	8.70	9.10	9.25	10.40	10.55	10.75	.....	.....
SWINEHART	Plain	qs14.00	qs15.10	qs19.20	s19.20	qs20.60	22.40	25.40	s28.50	.....	qs29.85	30.50	32.00	32.70	c34.25	34.75	s40.80	s42.00	43.45	c45.45	46.15	cs48.10	c53.30	s54.10	56.50	cs79.05	cs74.20
	Ribbed	qs15.70	qs16.80	qs21.35	s21.35	qs23.00	25.00	28.30	s31.70	.....	qs33.30	34.00	35.70	36.45	c38.10	38.70	s45.45	s46.90	48.40	c50.60	51.40	cs53.60	c63.50	s64.35	67.20	cs92.40	cs88.00
	Non-Skid	qs16.40	qs17.60	qs22.40	s22.40	qs24.15	26.25	29.75	s33.35	.....	qs34.90	35.70	37.45	38.30	c40.05	40.65	s47.70	s49.30	50.80	c53.15	53.95	cs56.30	c66.65	s67.60	70.55	cs97.25	cs92.65
	Tubes	2.90	3.00	3.20	3.40	3.55	3.60	3.80	3.95	.....	4.70	4.85	5.00	5.10	5.20	5.30	6.20	6.30	6.35	6.45	6.60	6.80	7.75	7.90	8.05	8.40	8.60
TEN BROECK	Plain	qs12.39	qs13.09	qs16.63	q16.56	qs17.39	19.16	21.37	.....	.....	qs25.60	25.99	27.19	27.69	28.77	29.09	.....	.....	c38.00	39.46	39.90	41.42	s46.55	s47.11	s47.68	.....	cs64.00
	Non-Skid	qs13.91	qs14.86	.....	q19.48	qs20.42	22.26	25.16	.....	qs29.21	qs30.48	31.05	32.63	33.33	34.91	35.47	.....	.....	c43.13	45.19	45.72	46.46	cs51.16	s51.98	54.14	.....	cs74.56
	Ribbed	.....	qs14.86	.....	q19.48	qs20.42	22.26	.....	.....	.....	qs30.48	31.05	32.63	33.33	.....	.....	.....	.....	43.13	45.19	.....	.....	s51.16	s51.98	.....	.....	s74.56
	Gray Tubes	3.02	3.14	3.32	3.56	3.68	3.75	3.92	4.11	4.77	4.89	5.08	5.20	5.32	5.44	5.56	6.46	.....	6.65	6.77	6.89	7.07	8.10	8.22	8.40	9.00	9.13
THERMOID	Non-Skid and Ribbed Tread	qs23.15	qs23.30	.....	qs29.30	qs31.30	c33.65	c36.55	.....	.....	qs40.65	c42.05	c43.25	c44.80	c45.45	c48.35	cs53.90	.....	c53.60	c55.90	c59.30	c61.00	c68.00	c70.30	c72.90	cs90.05	cs96.60
	Brown and DeLuxe Red Tubes	3.55	3.70	.....	4.75	4.90	5.05	5.45	.....	.....	5.95	6.05	6.25	6.50	6.60	6.75	7.70	.....	8.05	8.20	8.55	8.80	9.60	9.85	10.20	11.65	11.90
																										cs73.80	cs76.10
TYRIAN	Plain	qs14.30	s16.00	cs17.60	s20.00	qs21.15	c23.05	c26.10	.....	cs29.00	qs30.60	c31.35	c32.90	c33.65	c35.15	c35.70	.....	.....	c44.70	c46.70	c47.35	c49.30	c52.00	c52.85	c55.25	.....	.....
	Holdtite Non-Skid	qs15.60	s17.30	cs18.85	s22.10	qs 23.25	c25.10	c28.15	.....	cs31.80	qs33 30	c34.05	c35.65	c36.30	c37.90	c38.45	.....	.....	c48.10	c50.10	c50.75	c52.75	c55.50	c56.25	c58.65	cs79.90	cs82.25
	Tourist Gray Tubes	2.75	2.85	3.00	3.35	3.45	3.55	3.75	.....	4.35	4.50	4.65	4.80	4.95	5.15	5.30	.....	.....	6.15	6.25	6.45	6.60	7.45	7.55	7.65	8.20	8.40
	Tourist Red Tubes	3.10	3.20	3.30	3.75	3.85	3.95	4.15	.....	4.85	5.00	5.15	5.35	5.50	5.65	5.85	.....	.....	6.85	6.95	7.15	7.40	8.25	8.40	8.50	9.15	9.30
	Extra-Heavy Gray Tubes	3.15	3.30	3.50	3.75	3.80	3.90	4.15	.....	5.00	5.15	5.35	5.45	5.60	5.75	5.90	.....	.....	6.90	7.10	7.25	7.40	8.40	8.55	8.75	9.40	9.55
	Extra-Heavy Red Tubes	3.50	3.65	3.80	4.15	4.25	4.35	4.65	.....	5.60	5.75	5.90	6.05	6.20	6.35	6.50	.....	.....	7.65	7.90	8.05	8.20	9.40	9.55	9.75	10.40	10.60

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
UNITED STATES	Plain	13.25	13.80	16.85	17.95	18.85	20.80	27.15	30.25	33.75	27.45	28.00	29.30	30.05	36.20	31.90	43.80	39.15	40.40	42.90	44.65	51.10	45.20	56.25	51.10	78.90	91.45
	Usco Non-Skid	15.25	14.50	17.70	18.50	19.80	21.85	28.45	...	41.10	28.80	29.35	30.90	31.50	38.00	33.50	46.00	41.10	42.45	45.05	46.85	53.70	50.60	59.05	53.70	80.70	109.70
	Chain Non-Skid	16.50	16.40	19.95	21.35	22.75	24.55	33.00	35.60	41.10	33.40	34.10	35.90	36.65	44.15	38.95	52.70	47.15	48.75	51.70	53.85	61.25	57.85	67.65	61.25	91.45	100.50
	Nobby Non-Skid	20.70	22.10	28.30	28.70	30.25	39.45	43.05	47.80	49.20	40.80	40.80	42.85	43.65	49.85	44.60	58.20	55.20	57.10	60.50	63.05	74.30	70.20	71.25	74.30	98.30	83.50
	Royal Cord Non-Skid		2.85	3.15	3.75	3.85	4.00	4.30	4.50	4.70	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	9.25	9.40
	Gray Tubes		3.65	4.00	4.65	4.80	4.90	5.35	5.45	5.85	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.50	10.10	9.65	9.90	11.10	11.25	
	Red Tubes																										
VICTOR	Plain	17.10	18.05	...	22.25	...	25.85	...	...	...	24.55	35.15	36.70	37.30	38.90	39.30	...	...	46.50	48.85	50.70	60.00	...	61.45	60.00	...	...
	Ribbed		18.90	...	23.45	...	27.20	...	...	...	36.25	37.90	38.50	39.20	...	...	...	...	48.90	51.40	...	63.75	...	68.75	63.75	91.45	92.40
	Non-Skid	19.10	20.25	...	25.15	28.15	28.85	...	...	...	38.73	39.40	41.10	41.90	43.55	44.00	53.10	53.35	53.90	55.00	59.75	71.40	68.00	71.40	91.45	9.35	9.65
	Victor Gray Tubes	3.10	3.30	...	3.85	4.15	4.25	...	...	...	5.20	5.30	5.45	5.60	5.85	6.00	6.80	6.95	7.10	7.25	7.60	8.85	8.50	8.85	9.35	10.60	10.75
	Victor Red Tubes	3.40	3.60	...	4.25	4.80	4.90	...	...	...	5.75	5.95	6.10	6.20	6.45	6.60	7.70	7.75	7.90	8.15	8.45	9.80	9.40	9.80	10.60	12.80	13.45
	Springfield Tubes	4.25	4.50	...	5.55	5.70	5.80	...	...	...	6.75	6.90	7.10	7.25	...	7.55	...	8.85	9.05	9.30	9.70	11.00	10.55	10.80	11.00	12.80	13.45
	Springfield Red Tubes	4.60	4.85	...	6.00	6.10	6.20	...	...	...	7.30	7.40	7.60	7.75	...	8.15	...	9.60	9.80	10.05	10.45	11.60	11.40	11.90	13.90	14.55	
VITALIC	Non-Skid		qe15.50	...	qe20.10	...	q23.55	...	...	...	qe30.80	qe31.45	32.85	33.70	...	...	...	...	47.40	48.30	50.35	57.35	qe54.20	57.35	11.80	12.10	
	Red and Gray Tubes		3.85	4.00	4.60	4.75	4.85	5.10	5.25	5.95	6.05	6.15	6.25	6.40	6.50	6.60	7.80	7.90	8.05	8.30	8.45	10.00	9.90	10.00	10.20	11.80	12.10
	Extra Heavy Gray Tubes	3.75	4.35	4.60	5.15	5.35	5.50	5.85	6.00	6.70	6.80	7.05	7.20	7.35	7.55	7.70	8.80	8.95	9.15	9.30	9.70	11.75	11.35	11.55	13.50	14.05	
VULCAN	Gray Tubes	3.30	3.35	...	4.15	4.25	4.40	5.20	...	...	5.40	5.55	5.70	5.85	6.25	6.30	...	...	7.20	7.55	7.85	9.20	8.90	9.05	10.55	10.75	
	Indian Red Tubes	3.65	3.70	...	4.60	4.65	4.80	5.75	...	...	5.95	6.15	6.30	6.45	6.90	6.95	...	...	7.95	8.35	8.65	10.15	9.80	10.10	11.60	11.85	
WILSON	Wearwell Plain	q12.55	q12.20	...	q15.85	...	q18.55	...	...	...	...	q24.75	q26.50	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Wearwell Non-Skid	q13.15	q12.80	...	q16.60	q17.55	q19.45	...	...	...	q25.45	q26.00	q27.85	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Wearwell Gray Tubes	3.10	3.05	...	3.75	3.80	3.85	...	...	...	4.75	4.85	5.00	5.15	5.80	5.50	...	...	6.25	6.45	6.90	8.10	7.80	8.00	9.25	...	...
	Wearwell Red Tubes	3.40	3.35	...	4.20	4.25	4.30	...	...	...	5.30	5.40	5.55	5.70	6.45	6.10	...	...	7.00	7.35	7.65	8.05	8.70	9.50	10.30	...	...
	Wilson Non-Skid									qe49.25			qe53.90							qe65.45	qe67.75		qe78.75		qe82.55	qe90.00		
	Wilson Gray Tubes	3.40	3.35	...	4.20	4.25	4.30	...	...	...	5.30	5.40	5.55	5.70	6.45	6.15	...	...	7.00	7.35	7.60	8.85	8.50	8.70	9.40	...	...
	Wilson Red Tubes	3.70	3.65	...	4.80	4.85	4.90	...	...	...	6.00	6.05	6.10	6.20	7.09	6.79	...	...	7.70	8.05	8.35	9.75	9.38	9.55	10.40	...	...
WOODWORTH	Plain	20.40	21.65	...	29.15	30.05	31.35	33.50	...	...	41.45	43.05	...	45.80	47.30	48.70	...	...	62.30	66.05	68.10	79.20	74.70	77.00	...	...	...
	Non-Skid	22.90	24.20	...	32.20	33.65	35.10	36.45	...	...	46.75	48.40	...	51.80	53.40	55.10	...	...	70.10	74.35	76.55	84.05	86.55	89.05	...	...	...
	Tubes	3.90	4.00	...	4.40	4.55	4.65	4.95	...	...	6.35	6.60	6.70	6.80	6.90	7.10	...	...	8.65	9.20	9.40	10.35	10.00	10.55	...	...	...
ZEE-ZEE	"Z" Tread		18.82	...	21.67	...	24.12	...	...	...	32.83	34.37	35.61	36.39	37.71	38.89	47.52	48.42	49.33	50.09	53.70	56.22	57.96	58.86	72.90	78.26
	Tubes	3.81	4.11	4.35	4.71	4.83	4.93	5.05	...	6.04	6.16	6.28	6.57	6.80	6.89	7.06	8.10	8.29	8.41	8.45	8.95	10.67	10.77	12.23	12.44	13.04	

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

Why Not Clean Up the Shop?

It Will Create a Better Spirit Among the Workmen—And Then Again Unkept Surroundings Are Always a Source of Danger

IT is just as impossible to do good work in the slovenly shop as it is to be happy in a dirty, dilapidated home or in unkept clothing.

Good workmen will not work in dirty, disagreeable quarters. Poor workmen cannot do as good work under these circumstances as if the surroundings were cleaner. Slipshod surroundings mean slipshod work.

Aside from the moral effect, there are several practical reasons why the shop should be kept scrupulously clean and neat. Dirt on benches or on the floor gets on parts and time must be spent in wiping these clean before they can be replaced. Sometimes this is overlooked and rapidly worn surfaces result.

It is much better to keep the dirt out of the shop than try to keep the dirt off the parts.

As in surgery, it is considered better practice to use germ-proof instruments rather than attempt to sterilize the wound afterward. *One is a preventive measure and the other is an attempt at a cure.*

The shop with small parts, tools and different junk scattered hither and thither is a very easy place to lose parts. Any amount of time can be spent looking for small things like nuts or lock washers when, if the shop were neat, there would be no possibility of these things becoming mislaid.

In the same way time would be saved looking for tools. With no particular place for tools, every time a tool is wanted it must be looked for. To economize time the tools should be carried in cabinets on the walls, not in drawers, because the tool wanted is usually the very bottom one in the drawer and half the time it is overlooked because it is too much trouble to make a thorough search.

A littered floor is a recognized source of danger. A man may step on a screwdriver handle and slip. If his hands are empty, this may not be serious, but if he should be carrying a cylinder block the result might be disastrous both to the man and to the block.

Good light is an essential both for rapid, efficient work, and also from a safety standpoint. A large percentage of accidents are caused by insufficient light. Most accidents can be avoided if the danger can be seen, and this requires bright light.

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MOTOR WORLD GUIDE

Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r.p.m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carburetor Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
A & B 3T	3	$4500	144	s.	48x3½d	48x3½d	own...	3	4-5½x4½	42.8	2	l.	..	p.	d.	Bosch	h.								Schblr.	g.	s.	..	none	own...	elect	amid.	2	28.0	own...	Perf...	Franck	int-g.	rad-rd.	rad-rd.	ext-r-w.	ex-f-w.	Gemr.
A & B 9T	5	4750	144	s.	48x3½d	48x5d	own...	3	4-5½x4½	42.8	2	l.	..	p.	d.	Bosch	h.								Schblr.	g.	s.	..	none	own...	elect	amid.	2	28.0	own...	Perf...	Franck	int-g.	rad-rd.	rad-rd.	ext-r-w.	ex-f-w.	Gemr.
Acason B	1½	2100	150	s.	34x3½	36x5	Wauk.		4-3½x5½	22.5	2	l.	..	p.	s.	Eismn.	h.		cnt	motor	Wauk.	1500	18	Stmbg.	v.	s.	dp.	B&Bek.	Covert	selec	unt-m.	3	7.75	Timkn	Dtrt...	Blood.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Acason H2	2	2400	150	s.	34x4	36x7*	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt	motor	Wauk.	1200	15	Schblr.	v.		dd.	Muncie	Muncie	selec	unt-m.	4	7.75	Timkn	Dtrt...	Blood.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Acason L	3½	3000	166	s.	34x5	36x5d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt	motor	Wauk.	1200	12	Schblr.	v.		dd.	Muncie	Muncie	selec	unt-m.	4	10½	Timkn	Dtrt...	Blood.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Acason M	5	4200	172	s.	36x6	40x6*	Wauk.		4-4½x6½	36.2	2	l.	..	p.	s.	Eismn.	h.		cnt	motor	Wauk.	1000	10	Stmbg.	v.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	11½	Timkn	Dtrt...	Blood.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Acason Light Tractor	...	2500	114	s.	34x4	36x7*	Wauk.		4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt	motor	Wauk.	1200	15	Schblr.	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	9½	Timkn	Dtrt...	Blood.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Acason Heavy Tractor	...	3800	130	s.	34x5	36x6d	Wauk.		4-4½x6½	36.2	2	l.	..	p.	s.	Eismn.	h.		cnt	motor	Wauk.	1000	10	Stmbg.	v.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	10½	Timkn	Dtrt...	Blood.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Acme B	1	1750	130	s.	34x3	34x4	Cont.	3	4-3½x5	22.5	4	l.	..	t.	s.	Eismn.	h.	l, G&D	cnt	motor	Pierce.	1700	22	Rayfld	v.	..	dp.	B&Bek.	Cotta	selec	unt-m.	3	7.75	Timkn	Dtrt...	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Acme A	2	2450	148	s.	36x4	36x6	Cont.	3	4-4½x5½	27.2	4	l.	..	t.	p.	s.	Eismn.	f.	l, G&D	cnt	motor	Pierce.	1300	17	Rayfld	v.	..	dp.	B&Bek.	Cotta	selec	unt-m.	3	9.25	Timkn	Dtrt...	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Ross.
Acme C	3½	3250	168	s.	36x5	40x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	t.	p.	s.	Eismn.	h	l*	cnt	shaft.	Pierce.	1200	14	Rayfld	v.	..	dp.	B&Bek.	Cotta	selec	amid.	3	12.0	Timkn	Dtrt...	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
Acme D	4	3700	168	s.	36x5	40x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	t.	p.	s.	Eismn.	h		cnt	motor	Pierce.	1200	12	Rayfld	..	s.	dp.			selec	amid.	3	.....	Timkn	.....	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
American 30	3½	3450	158	s.	36x5	36x5d	Cont.		4-4½x5½	32.4	2	..	..	p.	s.	Eismn.	h	l*	cnt	motor	Pierce.	1143	14	Stmbg.	g.	..	dp.	Detlaf.	Covert	selec	amid.	4	8.75	Shldn	Perf...	M-Eva.	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Lvine.
Armleder HW	2	2750	148	s.	36x4	36x7	Cont.	3	4-4½x5½	32.4	2	l.	..	t.	p.	s.	Eismn.	h.	l*	cnt	shaft.	Pierce.	1200	15	Schblr.	g.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	8.5	Timkn	Mthr...	Spicer.	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
Armleder KW	3½	3600	156	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	t.	p.	s.	Eismn.	h.	l*	cnt	shaft.	Pierce.	1000	12	Schblr.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	8.75	Timkn	Mthr...	Spicer.	worm	rad-rd.	sprgs.	int-r-w	ext-sht.	Gemr.
Atlas 18	¾	885	106	p.	31x4	31x4	Lycmg	2	4-3½x5	16.9	4	l.	..	t.	s.	.....	h.	R my	.....	.....	.....	600	..	Carter.	g.	s.	d.	B&Bek.	.....	selec	unt-m.	3	4.7	Hess.	.....	Arvac.	sp-bv	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine.
Atterbury 7R	1½	2275	140½	s.	36x3½	36x5	Cont.	3	4-4½x5½	27.2	4	l.	..	t.	p.	s.	Eismn.	f.		cnt	motor	Pierce.	1200	15	Zenith.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	4	8.5	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Gemr.
Atterbury 7C	2	2675	153½	s.	36x3½	36x4d	Cont.	3	4-4½x5½	27.2	4	l.	..	t.	p.	s.	Eismn.	f.		cnt	motor	Pierce.	1200	15	Zenith.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	4	8.5	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Gemr.
Atterbury 7D	3½	3575	167½	s.	36x5	40x5d	Cont.	3	4-4½x5½	32.4	4	l.	..	t.	p.	d.	Eismn.	h.		cnt	motor	Pierce.	1125	13	Zenith.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	4	10.3	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Gemr.
Autocar 21F	2	1815	97	s*	34x4*	34x5*	own...		2 2-4½x4½	18.1		l.	..	p.	s.	Bosch*	f.							Stmbg.	..	s	dp.	own...	.....	prog	amid.	3	7.1	own...	.....	.....	d-rod.	sprgs.	sprgs.	int-r-w	ext-r-w.	.....
Available 1	1	1775	132	s.	36x3½	36x5	Cont.	3	4-3½x5	22.5	4	l.	..	t.	s.	Bosch	f.		none					Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	7.0	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
Available 2	2	2450	150	s.	36x4	36x7	Cont.	3	4-4½x5½	27.2	4	l.	..	t.	p.	s.	Bosch	f.		none					Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	7.7	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
Available 3	3½	3450	150	s.	36x5	40x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	t.	p.	s.	Bosch	f.		cnt	motor	Pierce.	1214	14	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	10.3	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
Available 5	5	4500	168	s.	36x6	40x6d	Cont.	3	4-4½x5½	32.4	2	l.	..	t.	p.	s.	Bosch	f.		cnt	motor	Pierce.	1175	12	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	11.7	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
Avery B	2	2700	128	s.	36x4	36x3½d	.....		4-4½x5	36.1	1	l.	..	t.	p.	d.	Eismn.	a.		cnt	motor	.....	1200	14½	Rayfld	.....		dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn	.....	rad-r l.	.....	.....	.....
Avery B	3	3200	128	s.	38x5	38x4d	.....		4-4½x5	36.1	1	l.	..	t.	p.	d.	Eismn.	a.		cnt	motor	.....	1200	13	Rayfld	.....		dp.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn	.....	rad-rd.	.....	.....	.....
Avery A	3	2500	140	s.	38x5	38x4d	.....		4-4½x5	36.1	1	l.	..	t.	p.	d.	Eismn.	a.		cnt	motor	.....	1200	12	Rayfld	.....		dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn	.....	rad-rd.	.....	.....	.....
Barber Tractor	6	2500	84	s.	24x3½	34x7	Buda...		4-4½x5½	29.0	4	l.	..	t.	p.	s.	Bosch	h.							Stmbg.	..	s.	d.	Fuller.	Fuller	selec				own...	.....	.....	worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross.
Beck A	1	1080	124	s.	34x3	34x4	Cont.		4-3½x5	19.6	2	l.	..	t.	p.	s.	Bosch	f.	l Vesta.	cnt	motor	Pierce.	2000	18	Stmbg.	g.	s.	dd.	Fuller.	Fuller	selec	unt-m.	3	6.0	Clark	Hig...	Blood.	int-g.	.....	.....	ext-r-w	int-r-w.	Lvine.
Beck B	1½	1275	124	s.	34x3	34x5	Cont.		4-3½x5½	19.6	4	l.	..	t.	p.	s.	Bosch	f.	l, Vesta.	cnt	motor	Pierce.	2000	18	Stmbg.	g.	s.	dd.	Fuller.	Fuller	selec	unt-m.	3	6.0	Clark	Hig...	Blood.	int-g.	.....	.....	ext-r-w	int-r-w.	Lvine.
Beck C	2	1750	144	s.	34x4	34x6	Cont.		4-4½x5½	28.9	2	l.	..	t.	p.	s.	Bosch	f.	l, Vesta.	cnt	motor	Pierce.	1500	12	Stmbg.	g.	..	dd.	Fuller.	Fuller	selec	unt-m.	3	9.0	Clark	Hig...	Blood.	int-g.	.....	.....	ext-r-w	int-r-w.	Lvine.
Beech Creek 3A	3	3850	132	s.	36x6	36x6	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt	motor	Wauk.	1000	12	King...	v.	s.	dp.	B-Bek.	own...	selec	amid.	6	8.0	own...	.....	.....	bevl-4.	rad-rd.	sprgs.	ext-r-w.	ext-sht.	own...
Bessemer G	1	1250	124	s.	34x3	34x4	Cont.	3	4-3½x5	19.6	4	l.	..	t.	s.	Dixie.	h.				none	1350	..	Zenith.	g.	s	dd.	Fuller.	Fuller.	selec	unt-m.	3	7.0	Torba.	Perf...	Blood.	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross.
Bessemer J	2	*2200	158*	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie.	h.		cnt	motor	Pierce.	1100	15	Rayfld	g.	s	c.	Hartfd.	B-Lipe	selec	amid.	3	8.0	Torba.	Perf...	Spicer.	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Ross.
Bessemer D	2	2550	140*	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie.	h.		cnt	motor	Pierce.	1100	15	Rayfld	g.	s	c.	Hartfd.	B-Lipe	selec	amid.	3	7.75	Timkn	Perf...	Blood.	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Ross.
Bessemer E	3½	3450	150	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	p.	s.	Dixie.	h.		cnt	motor	Pierce.	1160	12	Rayfld	g.	s	c.	Hartfd.	B-Lipe	selec	amid.	3	10.3	Timkn	Perf...	Spicer.	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross.
Bethlehem	1½	1245	126	s.	31x3	34x4	G.B.S.	3	4-3½x4½	22.5	4	l.	..	t.	s.	Brlng.	h.		cnt	d-shft	Pierce.	1300	18	Schblr.	g.	s.	d.	Dtroit.	Dtroit.	selec	unt-m.	3	7.4	Russl.	Shel...	Univ...	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine.
Bethlehem	2½	1775	144	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s.	Brlng.	h.		cnt	d-shft	Pierce.	1100	15	Schblr.	g.	s.	d.	Dtroit.	Dtroit.	selec	unt-m.	3	8.3	Russl.	Shel...	Univ...	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine.
Bethlehem Tractor	5	1865	120	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s.	Brlng.	h.		cnt	d-shft	Pierce.	1100	15	Schblr.	g.	s.	d.	Dtroit.	Dtroit.	selec	unt-m.	3	8.3	Russl.	Shel...	Univ...	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine.
Blair C	2	2850	121*	s.	34x4	34x3½d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	d.	Bosch	f.	Eismn	cnt	motor	Wauk.	1060	14	Zenith.	g.	s.	c.	.....	.....	id-c.	amid.	3	7.6	.....	Sheldon	.....	worm	sub-f	sub-f.	int-r-w.	ext-sht.	Lvine.
Blair D	3	3250	121*	s.	36x5	60x4d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	d.	Bosch	f.	Eismn	cnt	motor	Wauk.	970	12	Zenith.	g.	s.	c.	.....	.....	id-c.	amid.	3	8.6	.....	Sheldon	.....	worm	sub-f.	sub-f.	int-r-w	ext-sht.	Lvine.
Blair F	5	4250	144*	s.	36x6	36x6d	Wauk.	3	4-4½x6	32.4	2	l.	..	p.	d.	Bosch	a.	Eismn	cnt	motor	Wauk.	870	10	Zenith.	.....	.....	.....	.....	Owen	Owen	id-c.	amid.	3	9.3	.....	Sheldon	.....	worm	sub-f.	sub-f	int-r-w	ext-sht.	Lvine.
Bourne Magnetic VM	2	3300	143	s.	36x4	36x8	Hercl.	5	5-4 x5½	25.6	1	l.	..	p.	s.	Eismn.	f.	s, l Ents.	cnt	motor	Duplex.	1280	15	Zenith.	g.	s	.....	.....	Ents...	pro :	unt-m.	..	9½	Timkn	Mthr...	Blood.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Bourne Magnetic XM	3½	4000	160	s.	36x5	36x10	Hercl.	5	5-4½x5½	29.0	1	l.	..	p.	s.	Eismn.	f.	s, l Ents.	cnt	motor	Duplex.	1100	12	Zenith.	g.	s	.....	.....	Ents...	pro :	unt-m.	..	12.0	Timkn	Mthr...	Blood.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Brinton H	1	1250	125	p.	33x4½	33x4½	Wis...	2	4-3½x5	16.9	4	l.	..	p.	s.	.....	f.	l	.....	.....	.....	.....	.....	.....	h	s.	dd.	.....	.....	.....	selec	unt-m.	3	6.2	.....	.....	.....	worm	.....	sprgs.	int-f-w.	int-r-w.	.....
Brinton F	2½	2400	140	s.	36x4*	36x6*	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch	f.	l	cnt	motor	.....	.....	.....	.....	g.	s.	dd.	.....	.....	.....	selec	unt-m.	3	7.75	.....	.....	.....	worm	sprgs.	sprgs.	ext-r-w.	int-r-w.	.....
Briscoe 4-24	½	725	104	p.	30x3½	30x3½	own...	2	4-3 1/16x5½	16.3	4	l.	..	t.	s.	Conn.	h.	s, 1A-Lite.	.....	.....	.....	.....	.....	DBuick	g.	d.	c.	own...	own...	selec	unt-x..	3	4.2	own...	.....	own...	bevel.	t-arm	t-arm	int-r-w.	ext-r-w.	own...
Briscoe T-24	1	1000	132	ps	31x4	34x3½	own...	2	4-3 1/16x5½	16.3	4	l.	..	t.	s.	Conn.	h.	s, 1A-Lite.	.....	.....	.....	.....	.....	DBuick	g.	d.	c.	own...	own...	selec	unt-m.	3	9.0	own...	.....	.....	chain.	sprgs.	tor-e.	int-r-w.	ext-j-s.	own...
Brockway O	1	1450	124	s.	34x3½	34x4	Cont.	3	4-3½x5	19.6	4	l.	..	t.	s.	Bosch	f.	.....	suc	motor	Mnrch	1400	18	Schblr.	g.	s.	dd.	Fuller.	Fuller	selec	unt-m.	3	7.9	Sheldon	Merrill.	Spicer.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Brockway J-3	1½	2050	140	s.	36x3½	36x5	Cont.	3	4-3½x5	22.5	4	l.	..	p.	s.	Bosch	f.	.....	suc	motor	Mnrch	1200	15	Schblr.	g.	s.	c.	Hartfd.	B-Lipe	selec	amid.	3	8.6	Sheldon	Merrill.	Spicer.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Brockway K-2	2	2450	148	s.	36x4	36x7	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch	f.	.....	suc	motor	Mnrch	1200	15	Schblr.	g.	s.	c.	Hartfd.	B-Lipe	selec	amid.	3	8.5	Sheldon	Merrill.	Spicer.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Brockway R	3½	3200	164	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch	h.	l	.....	suc	motor	Mnrch	1100	12	Schblr.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	amid.	3	10.5	Timkn	Merrill.	Spicer.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine.
Brockway	½	700	106	..	31x4	31x4	own...		4-3½x4½	18.2	4	l.	..	p.	s.	Delco	h.	s, l Delco	.....	.....	.....	.....	.....	Marvel	v.	..	dd.	own...	own...	selec	unt-m.	..	4.08	Timkn	.....	.....	bevel.	.....	.....	int-r-w.	ext-r-w.	.....
Chase A	1	1725	138	s.	36x3½	36x5	Wauk.	3	4-3½x5½	19.6	4	l.	..	p.	s.	Bosch	f.	.....	cnt	motor	Mnrch	1200	18	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	7.2	Sheldon	Perf...	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Chase C	1½	2025	149	s.	36x3½	36x6	Wauk.	3	4-3½x5½	19.6	4	l.	..	p.	s.	Bosch	f.	.....	suc	motor	Mnrch	1000	16	Stmbg.	g.	..	dp.	B&Bek.	Cotta	selec	unt-m.	3	8.6	Sheldon	Perf...	.....	worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Chase B	2½	2475	160	s.	36x4	36x6d	Buda...	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch	f.	.....	suc	motor	Mnrch	1000	14	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	8.66	Sheldon	Perf...	.....	worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Chase X	x	2800	180	s.	36x4	36x4d	Buda...	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch	f.	.....	suc	motor	Mnrch	1000	19	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	9.33	Sheldon	Perf...	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.

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MOTOR WORLD GUIDE

Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES			MOTOR																							TRANSMISSION												BRAKES		Steering Gear
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	
A & B	3T	3	$4500	144	s.	48x3½d	48x3½d	own...	3	4-5½x4½	42.8	2	l.	..	p.	d.	Bosch	h.								Schblr.	g.	s.		none	own	elect	amid.	2	28.0	own	Perf	Franck	int-g.	rad-rd.	rad-rd.	ext-r-w.	ex-f-w.	Gemr
A & B	5T	5	4750	144	s.	48x3½d	48x5d	own...	3	4-5½x4½	42.8	2	l.	..	p.	d.	Bosch	h.								Schblr.	g.	s.		none	own	elect	amid.	2	28.0	own	Perf	Franck	int-g.	rad-rd.	rad-rd.	ext-r-w.	ex-f-w.	Gemr
Acason	B	1½	2100	150	s.	34x3½	36x5	Wauk.		4-3½x5½	22.5	2			p.	s.	Eismn.	h.		cnt.	motor.	Wauk.	1500	18	Stmbg.	v.	s.	dp.	B&Bek.	Covert	selec	unt-m.	3	7.75	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	H2	2	2400	150	s.	34x4	36x7*	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt.	motor.	Wauk.	1200	15	Schblr.	v.		dd.	Muncie	Muncie	selec	unt-m.	4	7.75	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	L	3½	3000	166	s.	34x5	36x5d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt.	motor.	Wauk.	1200	12	Schblr.	v.		dd.	Muncie	Muncie	selec	unt-m.	4	10½	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	M	5	4200	172	s.	36x6	40x6*	Wauk.		4-4¾x6½	36.2	2			p.	s.	Eismn.	h.		cnt.	motor.	Wauk.	1000	10	Stmbg.	v.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	11¾	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	Light Tractor		2500	114	s.	34x4	36x7*	Wauk.		4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt.	motor.	Wauk.	1200	15	Schblr.	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	9½	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	Heavy Tractor		3800	130	s.	34x5	36x6d	Wauk.		4-4¾x6½	36.2	2	l.	..	p.	s.	Eismn.	h.		cnt..	motor.	Wauk.	1000	10	Stmbg.	v.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	10½	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acme	B	1	1750	130	s.	34x3	34x4	Cont..	3	4-3½x5	22.5	4	l.	..	t.	s.	Eismn.	h.	l, G&D	cnt	motor.	Pierce.	1700	22	Rayfld.	v.		dp.	B&Bek.	Cotta	selec	unt-m.	3	7.75	Timkn	Dtrt	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acme	A	2	2450	148	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn.	f.	l, G&D	cnt	motor.	Pierce.	1300	17	Rayfld.	v.		dp.	B&Bek.	Cotta	selec	unt-m.	3	9.25	Timkn	Dtrt	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acme	C	3½	3250	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Eismn.	h	l*	cnt	shaft.	Pierce.	1200	14	Rayfld.	v.		dp.	B&Bek.	Cotta	selec	amid.	3	12.0	Timkn	Dtrt	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Acme	D	4	3700	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Eismn.	h		cnt	motor.	Pierce.	1200	12	Rayfld.		s.	dp.	.....	.....	selec	amid.	3	....	Timkn	.....	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
American	30	3½	3450	158	s.	36x5	36x5d	Cont..		4-4½x5½	32.4	2		..	p.	s.	Eismn.	h.	l*	cnt	motor.	Pierce.	1143	14	Stmbg.	g.		dp.	Detlaf.	Covert	selec	amid.	4	8.75	Shldn	Perf	M-Eva	worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Armleder	HW	2	2750	148	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s	Eismn.	h.	l*	cnt	shaft.	Pierce.	1200	15	Schblr.	g.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	8.5	Timkn	Mthr	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Armleder	KW	3½	3600	156	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Eismn.	h.	l*	cnt	shaft.	Pierce.	1000	12	Schblr.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.75	Timkn	Mthr	Spicer	worm	rad-rd.	sprgs.	int-r-w	ext-sht	Gemr
Atlas	18	¾	885	106	p.	31x4	31x4	Lycmg		2-4-3½x5	16.9	4	l.	..	t.	s.	.....	h.	R my	.....	.....	.....	600	...	Carter.	g.	s.	d.	B&Bek.	.....	selec	unt-m.	3	4.7	Hess	.....	Arvac	sp-bv	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine
Atterbury	7R	1½	2275	140½	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn.	f.		cnt	motor.	Pierce.	1200	15	Zenith.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	4	8.5	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Atterbury	7C	2	2675	153½	s.	36x3½	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn.	f.		cnt	motor.	Pierce.	1200	15	Zenith.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	4	8.5	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Atterbury	7D	3½	3575	167½	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	4	l.	..	p.	d.	Eismn.	h.		cnt	motor.	Pierce.	1125	13	Zenith.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	4	10.3	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Autocar	21F	2	1815	97	s*	34x4*	34x5*	own...	2	2-4½x4½	18.1		l.	..	p.	s.	Bosch*	f.							Stmbg.		s.	dp.	own	.....	prog	amid.	3	7.1	own	.....	.....	d-red.	sprgs.	sprgs.	int-r-w	ext-r-w	.....
Available	1	1	1775	132	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l.	..	t.	s.	Bosch.	f.		none					Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.0	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Available	2	2	2450	150	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch.	f.		none					Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.7	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Available	3	3½	3450	150	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch.	f.		cnt.	motor.	Pierce.	1214	14	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	10.3	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Available	5	5	4500	168	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch.	f.		cnt.	motor.	Pierce.	1175	12	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	11.7	.....	Tuthill	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Avery	B	2	2700	128	s.	36x4	36x3½d	.....		4-4½x5	36.1	1	l.	..	p.	d.	Eismn.	a.		cnt	motor.	.....	1200	14½	Rayfld.			dd.	.....	.....	selec	unt-js	3	3.5	.....	.....	.....	d-chn	.....	rad-rd	.....	.....	.....
Avery	B	3	3200	128	s.	38x5	38x4d	.....		4-4½x5	36.1	1	l.	..	p.	d.	Eismn.	a.		cnt	motor.	.....	1200	13	Rayfld.			dp.	.....	.....	selec	unt-js	3	3.5	.....	.....	.....	d-chn	.....	rad-rd.	.....	.....	.....
Avery	A	3	2500	140	s.	38x5	38x4d	.....		4-4½x5	36.1	1	l.	..	p.	d.	Eismn.	a.		cnt	motor.	.....	1200	12	Rayfld.			dd.	.....	.....	selec	unt-js	3	3.5	.....	.....	.....	d-chn	.....	rad-rd.	.....	.....	.....
Barber Tractor		6	2500	84	s.	34x3½	34x7	Buda..		4-4½x5½	29.0	4	l.	..	p.	s.	Bosch.	h.						13	Stmbg.		s.	d.	Fuller	Fuller	selec				own	.....	.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w	Ross
Beck	A	1	1080	124	s.	34x3	34x4	Cont..		4-3½x5	19.6	2	l.	..	p.	s.	Bosch.	f.	l Vesta.	cnt	motor.	Pierce.	2000	18	Stmbg.	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	6.0	Clark	Hig	Blood	int-g.	.....	.....	ext-r-w	int-r-w	Lvine
Beck	B	1½	1275	124	s.	34x3	34x5	Cont..		4-3½x5½	19.6	4	l.	..	p.	s.	Bosch.	f.	l, Vesta.	cnt	motor.	Pierce.	2000	18	Stmbg.	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	6.0	Clark	Hig	Blood	int-g.	.....	.....	ext-r-w	int-r-w	Lvine
Beck	C	2	1750	144	s.	34x4	34x6	Cont..		4-4½x5½	28.9	2	l.	..	p.	s.	Bosch.	f.	l, Vesta.	cnt	motor.	Pierce.	1500	12	Stmbg.	g.		dd.	Fuller	Fuller	selec	unt-m.	3	9.0	Clark	Hig	Blood	int-g.	.....	.....	ext-r-w	int-r-w	Lvine
Beech Creek	3A	3	3850	132	s.	36x6	36x6	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	s.	Eismn.	h.		cnt	motor.	Wauk.	1000	12	King.	v.	s.	dp.	B-Bek.	own	selec	amid.	6	8.0	own	.....	.....	bevl-4.	rad-rd.	sprgs.	ext-r-w	ext-sht	own
Bessemer	G	1	1250	124	s.	34x3	34x4	Cont.	3	4-3½x5	19.6	4	l.	..	t.	s.	Dixie	h.				none	1350	...	Zenith.	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	7.0	Torbn	Perf	Blood	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Ross
Bessemer	J	2	*2200	158*	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie	h.		cnt	motor.	Pierce.	1100	15	Rayfld.	g.	s.	c.	Hartfd	B-Lipe	selec	amid.	3	8.0	Torbn	Perf	Spicer	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Ross
Bessemer	D	2	2550	140*	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie	h.		cnt	motor.	Pierce.	1100	15	Rayfld.	g.	s.	c.	Hartfd	B-Lipe	selec	amid.	3	7.75	Timkn	Perf	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Bessemer	E	3½	3450	150	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	p.	s.	Dixie	h.		cnt	motor.	Pierce.	1160	12	Rayfld.	g.	s.	c.	Hartfd	B-Lipe	selec	amid.	3	10.3	Timkn	Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Bethlehem		1½	1245	126	s.	34x3	34x4	G.B.S.		3-4-3½x4½	22.5	4	l.	..	t.	s.	Brlng.	h.		cnt	d-shft.	Pierce.	1300	18	Schblr.	g.	s.	d.	Dtroit.	Dtroit.	selec	unt-m.	3	7.4	Russl	Shel	Univ	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Bethlehem		2½	1775	144	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s.	Brlng.	h.		cnt	d-shft.	Pierce.	1100	15	Schblr.	g.	s.	d.	Dtroit.	Dtroit.	selec	unt-m.	3	8.3	Russl	Shel	Univ	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Bethlehem	Tractor	5	1865	120	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s.	Brlng.	h.		cnt	d-shft.	Pierce.	1100	15	Schblr.	g.	s.	d.	Dtroit.	Dtroit.	selec	unt-m.	3	8.3	Russl	Shel	Univ	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Blair	C	2	2850	121*	s.	34x4	34x3½d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	d.	Bosch.	f.	Eismn	cnt	motor.	Wauk.	1060	14	Zenith.	g.	s.	c.	.....	.....	id-c.	amid.	3	7.6	.....	Sheldon	.....	worm	sub-f	sub-f.	int-r-w	ext-sht	Lvine
Blair	D	3	3250	121*	s.	36x5	66x4d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	d.	Bosch.	f.	Eismn	cnt	motor.	Wauk.	970	12	Zenith.	g.	s.	c.	.....	.....	id-c.	amid.	3	8.6	.....	Sheldon	.....	worm	sub-f.	sub-f.	int-r-w	ext-sht	Lvine
Blair	F	5	4250	144*	s.	36x6	36x6d	Wauk.	3	4-4½x6½	32.4	2	l.	..	p.	d.	Bosch.	a.	Eismn	cnt	motor.	Wauk.	870	10	Zenith.	.....	.....	.....	.....	Owen	Owen	id-c.	amid.	3	9.3	.....	Sheldon	.....	worm	sub-f.	sub-f	int-r-w	ext-sht	Lvine
Bourne Magnetic	VM	2	3300	143	s.	36x4	36x8	Hercl.	5	5-4 x5½	25.6	1	l.	..	p.	s.	Eismn.	f.	s,l Entz	cnt	motor.	Duplex.	1280	15	Zenith.	g.	s.	.....	.....	Entz	proz	unt-m.	..	9½	Timkn	Mthr	Blood	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Bourne Magnetic	XM	3½	4000	160	s.	36x5	36x10	Hercl.	5	5-4½x5½	29.0	1	l.	..	p.	s.	Eismn.	f.	s, l Entz	cnt	motor.	Duplex.	1100	12	Zenith.	g.	s.	.....	.....	Entz	proz	unt-m.	..	12.0	Timkn	Mthr	Blood	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Brinton	H	1	1250	125	p.	33x4½	33x4½	Wis...	2	4-3½x5	16.9	4	l.	..	p.	s.	.....	f.	l	.....	.....	.....	.....	...	.....	h.	s.	dd.	.....	.....	selec	unt-m.	3	6.2	.....	.....	.....	worm	.....	sprgs.	int-f-w	int-r-w	.....
Brinton	F	2½	2400	140	s.	36x4*	36x6*	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch.	f.	l	cnt	motor.	.....	.....	...	.....	g.	s.	dd.	.....	.....	selec	unt-m.	3	7.75	.....	own	.....	worm	sprgs.	sprgs.	ext-r-w	int-r-w	.....
Briscoe	4-24	½	725	104	p.	30x3½	30x3½	own...	2	4-3 1/16x5½	16.3	4	l.	..	t.	s.	Conn.	h.	s, l A-Lite	.....	.....	.....	.....	...	DBuick	g.	d.	c.	own	own	selec	unt-x..	3	4.2	own	.....	own	bevel.	t-arm.	t-arm	int-r-w	ext-r-w	own
Briscoe	T-24	1	1000	132	ps	31x4	34x3½	own...	2	4-3 1/16x5½	16.3	4	l.	..	t.	s.	Conn.	h.	s, l A-Lite.	.....	.....	.....	.....	...	DBuick	g.	d.	c.	own	own	selec	unt-j-s	3	9.0	own	.....	.....	chain.	sprgs.	tor-a.	int-r-w	ext-j-s.	own
Brockway	O	1	1450	124	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	l.	..	t.	s.	Bosch.	f.	.....	suc.	motor.	Mnrch.	1400	18	Schblr.	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	7.9	Sheldon	Merrill	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Brockway	J-3	1½	2050	140	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l.	..	p.	s.	Bosch.	f.	.....	suc.	motor.	Mnrch.	1200	15	Schblr.	g.	s.	c.	Hartfd.	B-Lipe	selec	amid.	3	8.6	Sheldon	Merrill	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Brockway	K-2	2	2450	148	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch.	f.	.....	suc.	motor.	Mnrch.	1200	15	Schblr.	g.	s.	c.	Hartfd.	B-Lipe	selec	amid.	3	8.5	Sheldon	Merrill	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Brockway	R	3½	3200	164	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch.	h.	l.	suc.	motor.	Mnrch.	1100	12	Schblr.	g.	s.	dd.	B-Lipe	B-Lipe	selec	amid.	3	10.5	Timkn	Merrill	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Lvine
Buick		½	790	106	..	31x4	31x4	own...		4-3½x4½	18.2	4	l.	..	p.	s.	Delco	h.	s, l Delco	.....	.....	.....	.....	...	Marvel.	v.	..	dd.	own	own	selec	unt-m.	..	4.08	Timkn	.....	.....	bevel.	.....	.....	int-r-w	ext-r-w	.....
Chase	A	1	1725	138	s.	36x3½	36x5	Wauk.	3	4-3½x5½	19.6	4	l.	..	p.	s.	Bosch.	f.	.....	cnt.	motor.	Mnrch.	1200	18	Stmbg.	g.	s.	d.l.	B-Lipe	B-Lipe	selec	unt-m.	3	7.2	Sheldon	Perf	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Chase	C	1½	2025	149	s.	36x3½	36x6	Wauk.	3	4-3½x5½	19.6	4	l.	..	p.	s.	Bosch.	f.	.....	suc.	motor.	Mnrch.	1000	16	Stmbg.	g.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	8.0	Sheldon	Perf	.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Chase	G	2½	2475	160	s.	36x4	36x4d	Buda..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch.	f.	.....	suc.	motor.	Mnrch.	1000	14	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	9.66	Sheldon	Perf	.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Chase		3½	2850	160	s.	36x4	36x5d	Buda..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch.	f.	.....	suc.	motor.	Mnrch.	1000	14	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	10.5	Sheldon	Perf	.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES			MOTOR																					TRANSMISSION											BRAKES		
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r. p. m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Lection	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	Steering Gear
Fulton	F-X	1½	1420	135	s*	34x3½	34x5*	HerSp	3	4-3½x5	16.9	4	l.	t.	s.	Dixie...	h.			suc.	motor.	Mnrch.	1200	16	Carter..	g.	d.	dd.	B&Bek.	own...	selec	unt-m.	3	8.2	Russel..			own...	int-g..	sprgs..	int-r-w	ext-r-w.	Lvine..
F.W.D	B	3	4600	124	s.	36x6	36x6	Wis...	3	4-4¼x5½	36.2	2	t.	p.	s.	Eismn..	h.	s, l N-East		cnt	motor.	Pierce..	1100	14	Stmbg..	g.	s.	d..	M Evns.	Cotta..	id-c.	amid..	3	8.9	own...		Blood..	bevl-4.	sprgs..	t-arm	ext-r-w.	ext-sht	Ross...
Garford	75B	1	1750	120	ps	34x4½	36x4	Buda..	3	4-3½x5½	19.6	4	l.	t.	s.	Dixie...	h.	s, l West..		suc.	motor.	Mnrch.	1238	17	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.8			Spicer..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Ross...
Garford	66B	1½	2100	142*	s.	36x3½	36x5	Buda..	3	4-3½x5½	22.5	4	l.	p.	s.	Dixie...	h.	s, l West..		suc.	motor.	Mnrch.	111	14	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	8.5			Spicer..	worm	sprgs..	sprgs..	int-r-w	ext-r-w.	Ross...
Garford	70B	2	2600	142*	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l.	p.	s.	Bosch..	h.	s, l West..		suc.	motor.	Mnrch.	934	13	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	8.5			Spicer..	worm	sprgs..	sprgs.	int-r-w	ext-r-w.	Ross...
Garford	77-B	3½	3700	128*	s.	36x5	40x5d	Wis...	4	4-4½x6	29.0	4	l.	p.	s.	Bosch..	h.	s, l West..		cnt	motor.	own....	1041	12	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	10.3			Spicer..	worm	rad-rd.	sprgs.	ext-sht	int-r-w.	Ross...
Garford	68	5	4500	128*	s.	36x6	40x6d	Wis...	3	4-4½x5½	36.1	2	t.	p.	s.	Bosch..	h.	West.....		cnt	motor.	own....	1005	9	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j.	4	13.3			Spicer..	d-chn.	rad-rd.	.....	int-r-w	ext-sht	Ross...
Garford	69	6	4700	128*	s.	36x6	40x7d	Wis...	3	4-5 9/16x5½	41.6	2	t.	p.	s.	Bosch..	h.	West.....		cnt	motor.	own....	920	8	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j.	4	13.3			Spicer..	d-chn.	rad-rd.	.....	int-r-w	int-sht.	Ross...
Garford Tractor		4½	2700	116	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l.	..	..	....	..	West.....		suc.	.....	Mnrch.	.....	...	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	39.3	Timkn.			worm	.....	.....	.....	.....	Ross...
Garford Tractor		7	3800	105	s.	36x5	40x5d	Wis...	3	4-4½x5½	36.1	2	t.	..	..	....	..	West.....		cnt	.....	own....	.....	...	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	12.0	Timkn.			worm.	.....	.....	.....	.....	Ross...
Garford Tractor		10	4600	102	s.	36x6	40x6d	Wis...	3	4-4 9/16x5½	41.6	2	t.	p.	s.	Bosch..	h.	West.....		cnt	.....	own....	.....	...	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j.	4	13.3	own...			d-chn	.....	.....	.....	.....	Ross...
Gary	F	1	.....	130	s.	36x3½	36x4	Buda*	..	4-3½x5½	22.5	4	..	..	t.	s.	Eismn..	f..	Vesta*...		suc.	motor.	Mnrch.	1275	15	Stmbg*	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.8	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary	G	1½	.....	144	s.	36x3½	36x5	Buda..	..	4-4½x5½	28.9	4	..	..	p.	s.	Eismn..	f..	Vesta....		cnt	motor.	Simplex	1275	15	Stmbg*	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Lvine..
Gary	H	2	.....	156	s.	36x4	36x6	Buda..	..	4-4½x5½	28.9	4	..	..	p.	s.	Eismn..	f..	Vesta....		cnt	motor.	Simplex	1275	15	Stmbg*	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Lvine..
Gary	HU	3	.....	162	s.	36x4	36x7	Buda..	..	4-4½x5½	28.9	4	..	..	p.	s.	Eismn..	a.	Vesta....		cnt	motor.	Simplex	1275	15	Stmbg*	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Lvine..
Gary	K	4	.....	162	s.	36x5	36x5d	Buda..	..	4-4½x6	32.4	4	..	..	p.	s.	Eismn..	a.	Vesta....		cnt	duplex	Duplex.	1200	12	Stmbg..	g.	..	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Lvine..
G. A. Schacht		2	2800	138*	s.	36x3½	36x6	Buda..	3	5-4½x5½	29.0	4	l.	..	p.	s.	Bosch..	h.	.....		cnt	motor.	own....	900	16	Schblr..	g.	s.	c..	Hartfd.	own....	selec	amid.	3	7.75	Timkn.	Natl..	metal..	worm	rad-rd.	t-arm	int-r-w	ext-r-w.	Barns..
G. A. Schacht		2½	3200	156*	s.	36x4	36x4d	Buda..	3	5-4½x5½	29.0	4	l.	..	p.	s.	Bosch..	h.	.....		cnt	motor.	own....	900	14	Schblr..	g.	s.	c..	Hartfd.	own....	selec	amid.	3	8.5	Timkn.	Natl..	metal..	worm	rad-rd.	t-arm	int-r-w	ext-r-w.	Barns..
G. A. Schacht		3½	3600	168*	s.	36x5	36x5d	Buda..	3	5-4½x5½	29.0	4	l.	..	p.	s.	Bosch..	h.	.....		cnt	motor.	own....	900	12	Schblr..	g.	s.	c..	Hartfd.	own....	selec	amid.	3	10.3	Timkn.	Natl..	metal..	worm	rad-rd.	t-arm	int-r-w	ext-r-w.	Barns..
G. A. Schacht		5	4600	168	..	36x5	40x6d	Buda..	..	.....	....	.	.	..	..	..	Bosch..	h.	.....		cnt	motor.	own....	....	10	Schblr..	..	..	..	Hartfd.	own....	selec	amid.	..	14.0	Timkn.	Natl..	metal..	worm	rad-rd.	t-arm	int-r-w	ext-sht	Barns..
Gem		½	675	....	p.	31x4	31x4	GB&S	3	4-3½x4½	22.5	4	l.	..	t.	s.	Conn...	h.	s, l Dynto.		....	.....	.....	....	....	Carter..	..	s.	dd.	GB&S..	G-Lees.	selec	unt-m.	3	4-1	W-W...			bevel..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Fostr...
Geneva	1	½	.....	96	s.	34x2	36x2½	.....	..	2-5½x4½	22.1	1	l.	..	..	s.	Simms.	f..	.....		.....	.....	.....	.....	18	Schblr..	..	..	dp.	.....	.....	plan	unt-j.	2	.....	.....			d-chn	rad-rd.	.....	.....	.....	.....
Globe		1	1425	132	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	l.	..	p.	s.	Eismn..	f..	.....		cnt	motor.	Pierce.	.....	...	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	....	Clfor.			int-g..	sprgs..	sprgs..	int-r-w	ext-r-w.	Lvine..
Globe		1½	1750	144	s.	36x3½	36x5	Cont..	..	4-3½x5½	22.5	4	l.	..	..	s.	Eismn..	f..	.....		cnt	motor.	Pierce.	.....	...	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	.....	.....			int-g..	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine..
Globe		2	2050	154	s.	36x4	36x6	Cont..	..	4-4½x5½	27.2	4	l.	..	..	s.	Eismn..	f..	.....		cnt	motor.	Pierce.	.....	...	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	....	Clfor.			int-g..	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine..
G.M.C	16	¾	1395	132	p.	35x5	35x5	Cont..	3	4-3½x5	22.5	4	l.	..	p.	s.	Eismn..	h.	.....		suc.	motor.	Mnrch.	1150	20	Marvel.	g.	s.	dd.	G.M.C.	G.M.C.	selec	unt-m.	3	6.0	W Mott	W Mott	Univ..	bevel.	rad-rd.	sprgs.	int-r-w	ext-r-w.	Jacox .
G.M.C	21	1	1950	136	s.	34x3½	34x5	Cont..	3	4-3½x5	22.5	4	l.	..	p.	s.	Eismn..	h.	.....		suc.	motor.	Mnrch.	1380	18	Marvel.	g.	s.	dd.	G.M.C.	G.M.C.	selec	unt-m.	3	7.7	Timkn	Dtrt...	Univ..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine
G.M.C	31	1½	2350	144*	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l.	..	p.	s.	Eismn..	h.	.....		suc.	motor.	Mnrch.	1300	15	Marvel.	g.	s.	dd.	G.M.C.	G.M.C.	selec	unt-m.	4	9.2	TDB..	Dtrt...	Univ..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine
G.M.C	41	2	2690	158*	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	h.	.....		suc.	motor.	Mnrch.	1200	14	Marvel.	g.	s.	dd.	G.M.C.	G.M.C.	selec	unt-m.	4	9.2	TDB..	Dtrt...	Univ..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine
G.M.C	71	3½	3750	163*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Eismn..	h.	.....		suc.	motor.	Mnrch.	1210	12	Marvel.	g.	s.	dd.	G.M.C.	G.M.C.	selec	amid.	4	12.0	TDB..	Dtrt...	Univ..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine
G.M.C	101	5	4350	163*	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Eismn..	h.	.....		suc.	motor.	Mnrch.	1210	10	Marvel.	g.	s.	dd.	G.M.C.	G.M.C.	selec	amid.	4	13.6	TDB..	Dtrt...	Univ..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine
Gramm-Bernstein		1	1900	124*	s.	34x3½	34x4	Wauk.	3	4-3½x5½	22.5	4	l.	..	p.	s.	Eismn..	h.	s, l* West.		cnt	motor.	Wauk.	1300	20	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid.	3	6.5	Sheldon	Sheldon	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Ross...
Gramm-Bernstein		1½	2300	130*	s.	34x3½	36x5	Wauk.	3	4-3½x5½	22.5	4	l.	..	p.	s.	Eismn..	h.	s, l* West.		cnt	motor.	Wauk.	1200	17	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid.	3	7.75	Sheldon	Sheldon	.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w.	Ross...
Gramm-Bernstein		2	2600	146	s.	34x4	34x3½d	Wauk.	3	4-3½x5½	22.5	4	l.	..	p.	s.	Eismn..	h.	s, l* West.		cnt	motor.	Wauk.	1200	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid.	3	8.6	Sheldon	Sheldon	.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w.	Ross...
Gramm-Bernstein		2½	3150	156	s.	36x4	36x4d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p.	d.	Eismn..	h.	s, l* West.		cnt	motor.	Wauk.	1150	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid.	3	7.7	Sheldon	Sheldon	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross...
Gramm-Bernstein		3½	3800	158*	s.	36x5	40x5d	Wauk.	3	4-4½x5½	32.5	2	l.	..	p.	d.	Eismn..	h.	s, l* West.		cnt	motor.	Wauk.	1100	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid.	4	8.7	Sheldon	Sheldon	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross...
Gramm-Bernstein		5	4700	168*	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	l.	..	p.	d.	Eismn..	h.	s, l* West.		cnt	motor.	Wauk.	1050	11	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid.	4	9.5	Sheldon	Sheldon	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross...
Hahn		¾	1100	120*	s.	36x3	36x3½	Cont..	3	4-3½x5	14.4	4	l.	..	p.	d.	Eismn..	h.	.....		cnt	motor.	Pierce.	1175	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Torbn..		Spicer.	worm	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine..
Hahn		1½	1950	144*	s.	36x3½	36x3½d	Cont..	..	4-4½x5½	27.2	..	..	..	..	..	Bosch..	h.	.....		cnt	motor.	Pierce.	980	15	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.		Spicer.	worm	rad-rd.	t-arm	.....	.....	Ross...
Hahn		3½	2900	148*	s.	36x5	36x5d	Cont..	..	4-4½x5½	32.4	..	..	..	..	..	.....	..	.....		.....	.....	.....	.....	...	.....	..	..	..	B-Lipe.	B-Lipe.	.....	.....	..	.....	Timkn.		Spicer.	.....	.....	.....	.....	.....	Ross...
Hall		2	2350	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch*.	f..	l, Bosch..		suc.	motor.	Mnrch.	1250	18	Zenith..	g.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	9.2	Timkn	Dtrt...	K-B...	worm	sprgs..	sprgs.	int-r-w	int-r-w	Gemr .
Hall		3½	3250	144	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch*.	f..	l, Bosch..		suc*	motor.	Mnrch*	1200	15	Zenith..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	unt-m.	3	10.5	Timkn	Dtrt...	K-B...	worm*	sprgs*.	sprgs*.	int-r-w.	int-r-w	Gemr .
Hall		5	4200	144	s.	36x5	40x6d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch*.	f..	l, Bosch*..		suc*	motor.	Mnrch*	1200	12	Zenith..	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	12.0	Timkn	Dtrt...	K-B...	worm / d-chn	sprgs.. / rad-rd.	sprgs..	int-r-w	int-r-w / ext-j.s.	Gemr .
Harvey	WFA	2½	2500	150	s.	36x4	36x7	Buda..	3	4-4½x5½	29.0	4	l.	..	p.	s.	Eismn..	a.	s, l West..		cnt	motor.	Duplex.	1000	16	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	7.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w	Ross...
Harvey	WHA	3½	3250	160*	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l.	..	p.	s.	Eismn..	a.	s, l West..		cnt	motor.	Duplex.	1000	13	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w	Ross...
Harvey	WKA	5	4000	160*	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	l.	..	p.	s.	Eismn..	a.	s, l West..		cnt	motor.	Duplex.	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w	Ross...
Harvey Tractor	HT	7	4000	125	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l.	..	p.	s.	Eismn..	a.	s, l West..		.....	.....	.....	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w	Ross...
Hawkeye	H	1½	1750	136*	s.	34x3½	34x5	Buda..	..	4-3½x5½	22.5	4	..	..	t.	s.	Eismn..	h.	s, l West*.		.....	.....	Duplex.	1500	15	Master.	v.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	7.00	Clfor...	Tuthill.	Univ..	int-g..	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine..
Hendrickson	G	2	.....	....	s.	36x4	36x4	Wauk.	..	4-4½x5½	29.0	2	..	..	p.	s.	Dixie...	h.	.....		suc.	motor.	Wauk.	1000	15	Stmbg..	g.	..	dd.	Fuller.	Fuller.	.....	unt-m.	..	7.75	Timkn	Tuthill.	.....	worm	rad-rd.	tor-a.	ext-r-w	ext-r-w.	Ross...
Hendrickson	H	3½	3000	....	s.	36x5	36x5d	Wauk.	..	4-4½x5½	32.4	2	..	..	p.	s.	Dixie...	h.	l		cnt	motor.	Wauk.	1100	14	Stmbg..	g.	..	dd.	B&Bek.	Cotta..	prog	unt-m.	3	10.3	Timkn	Tuthill.	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross...
Highway	A	5	.....	93	s.	34x4	36x4	Widly.	..	4-3½x5½	27.5	4	..	..	p.	s.	Eismn.	h.	.....		.....	.....	.....	.....	...	Schblr.	g.	..	dd.	B&Bek.	Warner	selec	unt-m.	..	13.4	own...		.....	int-g..	tor-a..	tor-a	int-f-w	ext-r-w	own....
Higrade		1	1800	115	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	l.	..	p.	..	Simms.	..	s, l Lo-Nv.		....	.....	Simplex	....	20	Zenith..	g.	s.	p.	Fuller.	Fuller.	id-cl	unt-m.	3	4.56	Sheldon		.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine.
Hoover		¾	1350	120	p.	32x4	33x4½	Cont..	3	4-3½x5	19.6	4	..	t.	..	..	Dixie.	h.	.....		.....	.....	.....	.....	25	Schblr.	v.	c.	d.	Fuller.	B-Lipe.	selec	unt-m.	3	6.2	Sheldon	Seldn .	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine.
Horner		1½	2600	145	s	36x4	36x4	.....	3	4-4½x5½	27.2	4	..	p.	d.	..	.....	h.	.....		cnt.	motor.	.....	.....	...	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	.....	3	.....	.....	Perf...	.....	worm	rad-rd.	.....	int-r-w	int-r-w	Ross .
Horner		2	2750	145	s	36x4	36x3½d	.....	3	4-4½x5½	27.2	4	..	p.	d.	..	.....	h.	.....		cnt.	motor.	.....	.....	...	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	.....	4	.....	.....	Perf...	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross .
Horner		3	3550	145	s.	36x5	40x4d	Cont..	3	4-4½x5½	32.4	2	t.	p.	d.	..	.....	h.	.....		cnt.	motor.	.....	.....	...	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	.....	3	9.4	own...	Perf...	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross .
Horner		5	4750	156	s.	38x6	42x6d	Cont..	3	4-5½x5½	44.2	2	t.	p.	d.	..	.....	h.	.....		cnt.	motor.	..	.....	...	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	13.4	own...	Perf...	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross .
Hurlburt	1	1½	2350	136*	s.	34x4	34x5	Buda..	3	4-3½x5½	22.5	4	l.	..	p.	s.	Dixie...	l..	l, Vesta..		cnt.	motor.	.....	1375	18	Shkspr.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.25	own...	Merl...	.....	worm	sprgs..	sprgs.	int-r-w	ext-r-w	Lvine
Hurlburt	2	2	3300	148*	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l.	..	p.	d.	Dixie...	l..	l, Vesta..		cnt	motor.	Pierce.	1300	16	Shkspr.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own...	Merl...	.....	worm	rad-rd.	t-arm	int-r-w	ext-sht	Lvine
Hurlburt	3	3½	3850	156*	s.	36x5	36x5d	Buda..	4	4-4½x6	32.4	4	l.	..	p.	d.	Dixie...	l..	l, Vesta..		cnt	motor.	Pierce.	1050	13	Shkspr.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own...	Merl...	.....	worm	rad-rd.	t-arm	int-r-w	ext-sht	Lvine
Hurlburt	5	5	4600	150*	s.	36x5	40x6d	Buda..	4	6-3½x5½	33.8	6	l.	..	p.	d.	Dixie...	l..	l, Vesta..		cnt	motor.	Pierce.	1360	12	Shkspr.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	10.3	own...	Merl...	.....	worm	rad-rd.	t-arm	int-r-w	ext-sht	Lvine
Hurlburt	7	7	5500	156*	s.	36x6	40x7d	Buda..	3	6-3½x5½	33.8	6	l.	..	p.	d.	Dixie...	l..	l, Vesta..		cnt	motor.	Pierce.	1360	12	Shkspr.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	13.0	own...	Merl...	.....	worm	rad-rd.	t-arm	int-r-w	int-sht	Lvine
Independent	F	1	1385	128*	s*	36x3*	36x4*	Cont..	3	4-3½x5	19.6	4	..	..	p.	s.	Eismn..	f..	s, l Jesco.		suc	motor	Mnrch	1350	..	Marvel	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	3				worm	sprgs.	sprgs.	int-r-w	int-r-w	
Independent	G	2	1850	144	s.	36x3½	36x5	Cont.	..	4-4½x5½	27.2	4	..	..	p.	s.	Eismn.	f..	.....		suc	motor	Mnrch	.....	...	Marvel	g.	s.	dd	.....	.....	selec	unt-m.	..	.....	.....	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w	

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheel base in inches	TIRES			MOTOR																						TRANSMISSION											BRAKES		
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearngs	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	ElectricSstem—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	Steering Gear
Menominee FW	1	1790	130*	s.	36x3½	36x4	Cont.	3	4–3¾x5½	22.5	4	l.	p.	s.	Eismn.	h.			cnt.	d-shft.	own.	850	16	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.75	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Gemr
Menominee H	1½	2050	144*	s.	36x3½	36x5	Cont.	3	4–3¾x5½	22.5	4	l.	p.	s.	Eismn.	h.			cnt.	d-shft.	own.	800	15	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	9.25	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Gemr
Menominee D	2	2475	144*	s.	36x4	36x6*	Cont.	3	4–4½x5½	27.2	4	l.	p.	s.	Eismn.	h.			cnt.	d-shft.	own.	750	14	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	9.25	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Gemr
Menominee G	3½	3275	160*	s.	36x5	36x5d	Cont.	3	4–4½x5½	32.4	2	l.	p.	s.	Eismn.	h.					own.	750	12	Stmbg.	g.	s.	dp.	B&Bek.	Cotta.	selec	amid.	3	10.3	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Gemr
Menominee	5	4150	160		36x6	36x6d	Cont.		4–4½x5½	32.4		l.	p.		Eismn.									Stmbg.			dp.	B&Bek.	Cotta.	id-e.				Timkn			worm	rad-rd.	sprgs.			Gemr
Modern	30	1800	132	s.	34x3½	34x5	Cont.		4–3½x5	22.5	4		p.	d.	x	f.			*	*	*			Zenith.			dd.	Fuller.	Fuller.	selec	unt-m.	3		Timkn			worm	rad-rd.	sprgs.	ext-r-w	ext-r-w	Ross
Moreland 17-N	1	2 50	126	s.	34x3½	34x4	Cont.	3	4–3¾x5	22.5	4	l.		t.	s	Dixie.	h.	l, West.	cnt.	motor.	Pierce.	1075	18	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.0	Timkn			worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Moreland 17-B	1½	2750	126*	s.	36x3½	36x5	Cont.	3	4–4½x5½	27.2	4	l.		p.	s	Dixie.	h.	l, West.	cnt.	motor.	Pierce.	1280	18	Master*	g.	s.	dd.	own.	own.	selec	amid.	4	7.0	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Moreland 17-C	2½	3375	144*	s.	36x4	36x7	Cont.	3	4–4½x5½	32.4	2	l.		p.	s	Dixie.	h.	l, West.	cnt.	motor.	Pierce.	1090	18	Master*	g.	s.	dd.	own.	own.	selec	amid.	4	6.8	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Moreland 17-G	4	415	162*	s.	36x5	40x5d	Wauk.	3	4–4½x6½	36.2	2	l.		p.	d.	Dixie.	h.	l, West.	cnt.	motor.	Wauk.			Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	7.8	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Moreland 17-J	5	500	180*	ps	36x6	40x6d	Wauk.	3	4–4½x6½	36.2	2	l.		p.	d.	Dixie.	h.	l, West.	cnt.	motor.	Wauk.			Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	10.3	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Moon B	1½	1650	140*	s.	36x3½	36x5*	Cont.	3	4–3¾x5½	22.5	4	l.		p.	d.	Remy*					none.	1800	18	Stmbg.	g.	s.	c.	Hartfd.	Muncie	selec	unt-j.	3		Sheldon			d-chn	rad-rd.		int-r-w	int-r-w	Warner
Muskegon 20	2	2200	144	s.	36x4	36x6	Cont.		4–4½x5½	27.2	4			p.	s	Eismn.	f.			cnt.	motor.	Pierce.	1230	16	Stwrt.	g.		dd.	Fuller.	Fuller.	selec	unt-m.	3	8.0	Torbn.			int-g.	sprgs.	sprgs.	ext-r-w	lvine	
Nash 2017	1	1495	130	s.	34x3	34x4	own.	3	4–3¾x5½	22.5	4	l.		p.	s	Delco		s, l Bijur.	cnt.	motor.	Simplex	1345	20	Stmbg.	g.	s.	dp.	B&Bek.	Detrt.	selec	unt-m.	3	6.8	Clfor.			int-g.	sprgs.	sprgs.	ext-sht	ext-r-w	
Nash 4017	2	3250	124*	s.	36x5	36x5	Buda.	3	4–4½x5½	29.0	4	l.		p.	s	Dixie.	h.	s, l Bijur.	cnt.	motor.	Simplex	1190	15	Stmbg.	g.	s.	dp.	B&Bek.	own.	selec	amid.	4	8.5	own.			int-g-4	sprgs.	sprgs.	ext-sht	int-4-w	
Nash 3017	2	1875	144	s.	34x4	34x6	own.	3	4–3½x5½	22.5	4	l.		p.	s	Delco	h.	s, l Bijur.	cnt.	motor.	Simplex	1290	16	Stmbg.	g.	s.	dp.	B&Bek.	own.	selec	unt-m.	3	8.1	Clfor.			int-g.	spgsr.	sprgs.	ext-sht	ext-r-w	
Nelson & LeMoon E1	1½	1900	opt	s.	36x3½	36x5	Cont.	3	4–3¾x5½	22.5	4	l.		p.	s	Bosch	h.	s, l West.	suc.	motor.	Mnrch	1100	18	Stmbg.	g.		dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn	Tuthill		worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Nelson & LeMoon E2	2	2250	opt	s.	36x4	36x7	Cont.	3	4–4½x5½	27.2	4	l.		p.	d.	Bosch	h.	s, l West.	suc.	motor.	Mnrch	1100	18	Stmbg.	g.		dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn	Tuthill		worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Nelson & LeMoon E3	3	2950	opt	s.	36x5	38x5d	Cont.	3	4–4½x5½	32.4	2	l.		p.	d.	Bosch	h.	s, l West.	suc.	motor.	Mnrch	1100	14	Stmbg.	g.		dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Timkn	Tuthill		worm	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine
Nelson & LeMoon	5	3750	opt	s.	36x6	40x6d	Buda.		4–4½x6	32.4	4			p.	d.	Bosch	h.	s, l West.	suc.	motor.	Mnrch	1050	11	Stmbg.	g.		dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	11.3	Timkn	Tuthill		worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Netco D	2	2800	144*	s.	36x4	36x6	Cont.	3	4–4¼x5½	27.2	4	l.		p.	s	Eismn.	f.	s, l G&D.			none.	1800	15	Zenith.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.5	Timkn			worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Netco E	2	3200	144*	s.	36x4	36x6	Cont.	3	6–3½x5½	33.8	6	l.		p.	d.	G&D.	h.	s, l G&D.			none.			Zenith.	g.	s.	dd.	B-Lipe.	B-Lipe.	prog	unt-m.	3	8.5	Timkn			worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
New York M	1½	2200	144*	s.	36x3½	36x5			4–4½x5½	27.2	4	l.		p.	s	Bosch	f.		cnt.	motor.	Pierce.	1400	18	Stmbg.	g.	s.	dp.			id-e.	unt-m.	3	7.7				worm	rad-rd.	sprgs.	int-r-w	int-r-w	
New York N	2	2600	144	s.	36x4	36x4d		3	4–4½x5½	27.2		l.		p.	s	Bosch	f.		cnt.	motor.	Pierce.	1100	15	Stmbg.	g.	s.	dp.			id-e.	unt-m.						worm	rad-rd.	sprgs.	int-r-w	int-r-w	
Niles B	1	1500	124	p.	35x5	35x5	Cont.	3	4–3½x5	19.6	4	l.		t.	s	Eismn.	h.		cnt.	motor.	Pierce.	1573	25	Stmbg.	g.	s.	dd.	Covert	Covert	selec	unt-m.	3	6.5	Timkn			worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Niles E	2	2400	140*	s.	36x4	36x7	Cont.	3	4–4½x5½	27.2	4	l.		p.	s	Eismn.	h.		cnt.	motor.	Pierce.	1173	15	Stmbg.	g.	s.	dp.	B&Bek.	Covert	selec	amid.	3	8.5	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Gemr
Noble MW	2	2300	148	s.	36x4	36x6	Cont.		4–4½x5½	27.2	4					Eismn.					Pierce.	1300	16	Stmbg.			dp.	B&Bek.	Cotta.			3	8.75	Sheldon			worm					Ross
Norwalk	1	1350	30	p.	3 x 4	3 x 4	Lycmg									Delco		s, l Dynt.																							
Old Hickory	¾	875	112	p.	33x4	33x4	Lycmg	2	4–3½x5	16.9	4	l.		t.	s	Conn.	h.	s, l Dynt.				950	16	Carter.	g.	s.	c.		G-Lees.	selec	unt-m.	3	6.0	Salsby.			bevel.	tor-t.	tor-t.	int-r-w	ext-r-w	
Old Reliable	1½	1950	150*	s.	34x3½	36x6	Wis.	3	4–3¾x5	22.5	4	l.		p.	s	Bosch	h.	l.						Stmbg.	g.	d.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.7				worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Old Reliable	2	2450	150	s	34x4	36x4d	Wis.	4	4–4x6	25.6	4	l.		p.	s	Bosch	h.	l.	cnt.	duplx	Duplex.			Stmbg.	g.	d.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.7	Sheldon			worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Old Reliable	2½	2750		s	34x4	36x4d	Wis.	3	4–4½x5	29.0	2	t.		p.	s	Bosch	h.	l.						Stmbg.	g.	s	dd.		DSOC.	selec	unt-j.	3		SA&P.			d-chn	rad-rd.		int-r-w	ext-j-s.	Ross
Old Reliable	3	3250	150	s	34x5	36x5d	Wis.	4	4–4½x6	29.0	4	l.		p.	s	Bosch	h.	l.	cnt.	duplx	Duplex.			Stmbg.	g.		dd.		B-Lipe.	selec	unt-m.	3	8.7	Sheldon			worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Old Reliable	4	3750		s	36x5	40x5d	Wis.	4	4–4½x5½	36.2	2	t.		p.	s	Bosch	h.	l.	cnt.	duplx	Duplex.			Stmbg.	g.		dd.		B-Lipe.	selec	unt-m.	4	8.7	Sheldon			worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Old Reliable	4	3750		s	36x6	36x6d	Wis.	3	4–4½x5½	36.2	2	t.		p.	s	Bosch	h.	l.						Stmbg.	g.	s	d.			selec	amid.	3		Sheldon			d-chn	rad-rd.		ext	int.	Ross
Old Reliable	5	4500	150*	s	36x6	36x6d	Wis.	3	4–3½x5½	36.2	2	t.		p.	s	Bosch	h.	l.	cnt.	duplx	Duplex.			Stmbg.	g.	s	d.	DriSe.		selec	amid.	3					d-chn	rad-rd.		ext-r-w	int-j-s.	
Old Reliable	7	5000	150	s	36x6	40x7d		3	4–5 1/16x5½	41.6	2	t.		p.	s	Bosch	h.	l.	cnt.	duplx	Duplex.			Stmbg.	g.	s	d.			selec	unt-j.	4					d-chn	rad-rd.		int-r-w	ext-j-s.	
Oneida A	1	2000	130	s	36x3½	36x5	Cont.		4–3¾x5½	22.5	4			p.	s	Bosch	h.	l, Bosch.	cnt.	motor.	Duplex.	980	16	Stmbg.	g.		d.	M-Eva.	Cotta	id-e.	amid.	3	8.7	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Oneida B	1½	2650	130	s	36x4½	36x5	Cont.		4–4½x5½	27.2	4			p.	s	Bosch	h.	l, Bosch.	cnt.	motor.	Duplex.	1040	15	Stmbg.	g.		d.	M-Eva.	Cotta	id-e.	amid.	3	9.2	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Oneida C	2	3000	144	s	36x4	36x4d*	Cont.		4–4½x5½	27.2	4			p.	s	Bosch	h.	l, Bosch.	cnt.	motor.	Duplex.	970	14	Stmbg.	g.		d.	M-Eva.	Cotta	id-e.	amid.	3	9.2	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Oneida D	3½	3600	160	s	36x5	36x5d	Cont.		4–4½x5½	32.4	2			p.	s	Bosch	h.	l, Bosch.	cnt.	motor.	Duplex.	1150	12	Stmbg.	g.		d.	M-Eva.	Cotta	id-e.	amid.	3	10.3	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Overland Panel	¾	715	104	p	31x4	31x4	own.	2	4–3½x5	18.2	4	l.		t.		Conn.	h.	s, l A-Lite.			none.			Tltsn.	v.	d.	c.	own.	own.	selec	unt-x.	3	4.3	own.			bevel.	tor-t.	tor-t.	int-r-w	ext-r-w	own.
Overland	¾	880	106	p	33x4½	33x4½	own.	5	4–4½x4½	27.2	4	l.		t.		Conn.	h.	s, l A-Lite.			none.			Tltsn.	g.	s.	c.	own.	own.	selec	unt-x.	3	4.4	own.			bevel.	tor-t.	tor-t.	int-r-w	ext-r-w	own.
Packard 1-E	1	2450	126*	s	34x3½	34x6	own.	4	4–4x5½	25.6	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own.	1000	16	own.	p.	s.	dd.	own.	own.	selec	amid.	4	6.25	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Packard 1½-E	1½	2800	126*	s	34x3½	34x3½d	own.	4	4–4x5½	25.6	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own.	1000	16	own.	p.	s.	dd.	own.	own.	selec	amid.	4	6.25	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Packard 2-E	2	3200	144*	s	34x4	34x4d	own.	4	4–4x5½	25.6	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own.	1000	14	own.	p.	s.	dd.	own.	own.	selec	amid.	4	7.25	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Packard 3-E	3	3900	156*	s	36x5	36x5d	own.	4	4–4½x5½	32.4	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own.	1000	12	own.	p.	s.	dd.	own.	own.	selec	amid.	4	9.0	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Packard 4-E	4	4375	156*	s	36x5	40x5d	own.	4	4–4½x5½	32.4	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own.	1000	12	own.	p.	s.	dd.	own.	own.	selec	amid.	4	10.0	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Packard 5-E	5	4900	156	s	36x6	40x6	own.	4	4–5 x5½	40.0	4	l.		p.	d.	Dixie.	h	,l Bijur.	cnt.	motor.	own.	1000	11	own.	p.	s.	dd.	own.	own.	selec	amid.	4	10.7	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Packard 6-E	6	5100	156	s	36x6	40x7	own.	4	4–5 x5½	40.0	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own.	1000	11	own.	p.	s.	dd.	own.	own.	selec	amid.	4	10.7	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Packet	1/8	300	100	p.	28x3	28x3	Prugh.	2	4–2½x4	12.1	4	l.		t.	s	A.Kent.	s.				none.	1500	25	Carter.	g.	d.		own.	own.	frie.	unt-j.	3	4.2	own.			d-chn	rad-rd.		int-r-w	int-r-w	own.
Palmer	1	1685	132½	s	34x3½	34x4	Cont.	3	4–3¾x5	22.5	4	l.		t.	s	Bosch	f.				none.		18	Stmbg.	g.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	3		Torbn.			int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Ross
Palmer	2	2295	144	s.	36x3½	36x3½d	Cont.	3	4–4½x5½	27.2	4	l.		p.	s.	Bosch	f.		cnt.	motor.	Pierce.	1000	15	Stmbg.	g.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	3	7.7	Timkn			worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Panhard	1	795	125	ps	32x3½	32x3½	Gray.		4–3½x5	19.6	4	l.		t.		A-Lite.		l, A-Lite.						Schblr.	v.	s.	dd.	Fuller.	Fuller.			3	6.5	Torbn.			int-g.			int-r-w	ext-r-w	
Peerless TC2	2	3000	145	s.	36x4	36x4d	own.	3	4–4½x6½	32.4	2	t.	m	p.	t.	Remy.	h.		cnt.	motor.	own.	925	16	Stmbg.	g.	s.	c.	own.	B-Lipe	selec	amid.	3	6.0	own.			worm	sprgs.	sprgs.	int-r-w	t-r-w	own.
Peerless TC3	3	3700	151*	s.	36x4	40x4d	own.	3	4–4½x6½	32.4	2	t.	m	p.	d.	Remy.	h.		cnt.	motor.	own.	925	14½	Stmbg.	g.	s.	c.	own.	own.	selec	unt-j.	4	7.4	own.			d-chn	rad-rd.	rad-rd.	int-r-w	ext-j-s.	own.
Peerless TC4	4	4000	151*	s.	36x5	40x5d	own.	3	4–4½x6½	32.4	2	t.	m	p.	t.	Remy.	h.		cnt.	motor.	own.	925	12½	Stmbg.	g.	s.	c.	own.	own.	selec	unt-j.	4	8.7	own.			d-chn	rad-rd.	rad-rd.	int-r-w	ext-j-s.	own.
Peerless TC5	5	4500	151*	s.	38x6	42x6d	own.	3	4–4½x6½	32.4	2	t.	m	p.	t.	Remy.	h.		cnt.	motor.	own.	925	11	Stmbg.	g.	s.	c.	own.	own.	selec	unt-j.	4	10.5	own.			d-chn	rad-rd.	rad-rd.	int-r-w	ext-j-s.	own.
Peerless TC6	6	5000	151*	s.	38x7	42x7d	own.	3	4–4½x6½	32.4	2	t	m	p	t.	Remy.	h.		cnt.	motor.	own.	925	11	Stmbg.	g.	s.	c.	own.	own.	selec	unt-j.	4	10.5	own.			d-chn	rad-rd.	rad-rd.	int-r-w	ext-j-s.	own.
Pierce-Arrow	2	3750	150*	s.	36x4	36x4d	own.	3	4–4x5½	25.6	2	t.	m	p.	s.	Eismn*	h.		cnt.	motor.	own.	1050	16	own.	g.	s.	c.	own.	own.	selec	amid.	4	7.0	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Pierce-Arrow	5	5500	168*	s.	36x5	40x6d	own.	3	4–4½x6	38.3	2	t.	m	p.	d.	Bosch*	h.		cnt.	motor.	own.	950	14	own.	g.	s.	c.	own.	own.	selec	amid.	3	7.8	own.			worm	rad-rd.	t-arm	int-r-w	ext-sht	own.
Pullmore	3	3650	163	s.	36x6	36x6	Buda.		4–4½x6	32.4	4	l.		p.	s.	Eismn.	h.	West.	cnt.	motor.	Pierce.	1050	12		v.	s.		B&Bek.	Warner	selec	unt-m.	3	9.9	own.			bevel	rad-rd.	rad-rd.	int-r-w	ext-d-s	Ross
Rainier	½	995	115	p.	33x4	33x4		2	4–3¼x4½	16.9	4	l.		t.	s.	Dixie.	h.	s, l Splitd.			none.	2000	34	Zenith.	v.	s.	dp.			selec	unt-m.	3	5.8				worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Rainier	1½	1340	125	p*					4–3¼x4½																																
Rennoc	2½	3250	144)																																						
Rennoc Tractor	8	3250	158)	s.	36x5	36x7	Buda.		4–4½x5½	27.2	4	l.		p.	d.	Bosch	h.	l West.	cnt.	motor.	Pierce.	1200	18	Stmbg.	v.	s.	dd.	Warner	Warner	selec	amid.	4	8.6	sprgs.			worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Ree F	3	1050	128	p.	34x4½	34x4½	own.	3	4–4½x4½	27.2	2	ll.		½	p.	s.	Remy.	h.	s, l Remy.		none.			Johnsn.	g.	d.	dd.	own.	own.	selec	amid.	3	4.3	own.			sp-lv.	sprgs.	t-arm	none	ss-r-w.	own.
Ree 3	2	1800	146	s.	36x4	36x34d	own.	3	4–4½x4½	27.2	2	ll.		½	p.	d.	Nash	h.	hyd.	motor.	own.	1250	14	Johnsn.	g.	s.	dd.	own.	own.	selec	amid.	3	4.7	own.			d-chn	rad-rd.			ext-r-w	own.

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES			MOTOR																							TRANSMISSION											BRAKES		Steering Gear
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	
Tiffin	SW	6	4650	168	s.	36x6	40x6d	Cont..	3	6-3¾x5	33.8	6	l..		p.	s.	Bosch..	h.	s, lBosch.	cnt.	motor.	Pierce..	1000	10½	Schblr..	g.	s.	dp.	B&Bek.	Covert.	selec	amid..	3	13.0	Sheldon	.....	.....	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Titan		5	5000	156	s.	36x6	40x6d	Buda..	..	4-4½x6	32.4	4	..	..	p.	s.	Bosch..	h.	l,Bosch..	cnt.	motor.	Simplex	1000	11	.....	g.	..	dp.	B&Bek.	Cotta..	id-c.	amid..	3	11.0	Clfor...	Sheldon	.....	int-g..	rad-rd.	sprgs..	int	int.....	Lvine..
Transport Tractor	N	5	2750	80	s.	34x3½	34x4d	.....	3	4-3¾x5	22.5	4	l..	..	t.	s.	Bosch..	f.	.....	suc.	motor.	Mnrch	....	12	Zenith..	g.	..	dd.	.....	.....	selec	unt-m.	4	....	.....	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
Triangle	A	1½	.....	144	s.	34x3½	34x5	Wauk..	..	4-3¾x5¼	22.5	4	..	..	p.	s.	Eismn..	f.	.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.0	Torbn..	.....	.....	int-g..	sprgs..	sprgs.	ext-r-w.	ext-sht.	Gemr..
Union	B	2½	2075	152	s.	39x4	39x6	Wis...	4	4-4x6	25.6	4	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	d-shft.	Simplex	1200	15	Schblr..	g.	d.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Russel..	Mthr...	.....	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
United	BSW	2	2350	144*	s.	36x4	36x4d	Cont..	3	4-4¼x5¼	27.2	4	l..	..	p.	s.	Eismn..	h.	s,l.....	cnt.	motor.	Pierce..	1125	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	Sheldon	Tuthill.	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
United	CSW	3½	3150	144*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	s,l*.....	cnt.	motor.	Pierce..	980	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	Sheldon	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
United	DSW	4	3450	144*	s.	36x5	36x6d	Cont..	3	4-4½x5½	32.4	2	t.	..	p.	s.	Eismn..	h.	s,l*.....	cnt.	motor.	Pierce..	980	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	Tuthill.	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
United	ESW	5	4250	144*	s.	36x6	40x6d	Wis...	3	4-4½x5½	41.6	2	t.	..	p.	s.	Eismn..	h.	s,l*.....	cnt.	d-shft.	Pierce..	897	10	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	11.7	Sheldon	Tuthill.	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
United Tractor		6	2490	110	s.	34x3½	34x7	Buda..	..	4-4½x5½	27.2	4	l..	..	p.	s.	Bosch..	..	.....	....	.....	.....	.....	..	Zenith..	g.	s.	....	Muncie	Muncie	selec	unt-m.	4	10.0	.....	.....	.....	int-g..	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
U. S.	E	2	2650	144*	s.	34x4	36x4d	Cont..	3	4-4⅛x5¼	27.2	4	l..	..	p.	d.	Bosch..	h.	l,Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hartfd.	Cotta..	id-c.	amid..	3	8.2	own....	Tuthill.	Hart...	d-chn	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.	H	2	2950	144*	s.	34x4	36x4d	Cont..	3	4-4⅛x5¼	27.2	4	l..	..	p.	d.	Bosch..	h.	l,Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hartfd.	Cotta..	id-c.	amid..	3	8.7	Sheldon	Sheldon	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
U. S.	D	3½	3350	156*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	d.	Bosch..	h.	l,Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hartfd.	Cotta..	id-c.	amid..	3	8.1	own....	Tuthill.	Hart...	d-chn	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.	J	3½	3650	156*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	d.	Bosch..	h.	l,Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hartfd.	Cotta..	id-c.	amid..	3	11.7	Sheldon	Sheldon	Hart...	worm	rad-rd.	.....	int-r-w.	int-r-w.	Lvine..
U. S.	K	5	4550	168*	s.	36x5	40x6d	Wauk.	3	4-4¾x6¾	36.2	2	l..	..	p.	d.	Bosch..	h.	l,Bosch..	cnt.	motor.	Wauk..	950	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid..	3	8.8	Sheldon	Sheldon	Hart...	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
Universal	G	1½	195	0133	*s	34x3½	34x5	Buda..	2	4-3¾x5¼	22.5	4	l..	..	t.	d.	Eismn..	..	.....	cnt.	motor.	own...	1160	15	Zenith..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	7.2	own....	.....	.....	worm	rad-rd.	.....	int.....	int.....	Lvine..
Universal	D	2	2800	132*	s.	36x4	36x4d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eismn..	..	.....	cnt.	motor.	own...	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid..	3	9.1	own....	.....	.....	d-chn	rad-rd.	.....	ext	int.....	Lvine..
Universal	A	3	3400	132*	s.	36x5	36x5d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eismn..	h.	.....	cnt.	motor.	own...	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid..	3	10.2	own....	.....	.....	d-chn	rad-rd.	.....	ext-sht	int-r-w.	Lvine..
Velie	25	2	2750	150*	s.	36x4	36x7	Cont..	3	4-4¼x5¼	27.2	4	l..	..	p.	s.	Bosch..	h.	s..Remy.	cnt.	motor.	Pierce..	1008	18	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid..	4	7.7	Timkn.	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Velie	26	3½	3600	172*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	Pierce..	1215	15	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid..	4	10.3	Timkn	.....	.....	worm	rad-rd.	sprgs..	int.....	int.....	Gemr..
Vim	21	½	765	108	p.	31x4	31x4	own...	3	4-3x4½	14.4	4	l..	..	t.	s.	Dixie...	h.	l,Split...	....	.....	.....	.....	25	Zenith..	g.	..	c..	own....	own....	selec	unt-m.	3	5.25	W-W...	Sheldon	Spicer..	bevel..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Jacox..
Walter	F	5	5000	156	s.	40x6	40x6d	own...	..	4-4¾x6¾	36.1	4	..	..	p.	s.	Eismn..	f.	s,lWest..	....	motor.	own....	1000	...	H&N..	g.	..	dp.	own....	own....	selec	amid..	4	8.0	own....	Merl..	.....	int-g-4	sprgs..	sprgs..	int-r-w.	ext-sht	own....
Watson	Tractor	5	4050	80	s.	34x4	36x5d	Cont..	3	4-4½x5½	32.4	4	l..	..	p.	d.	Bosch..	h.	.....	cnt.	motor.	Pierce..	1100	11	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	10.3	Timkn.	.....	.....	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
White	GBBE	¾	2300	133½	p.	34x4½	34x4½	own...	2	2-3¾x5½	22.5	4	l..	m	p.	s.	.....	h.	s,l*.....	....	.....	none....	.....	...	own....	g.	s.	p..	own....	own....	selec	amid..	4	....	own....	.....	.....	bevel..	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own....
White	TBC	1½–2	3300	157½	s*	36x3½	36x3½d	own...	2	2-3¾x5½	22.5	4	l..	m	p.	s.	.....	h.	s,l*.....	....	.....	none....	.....	...	own....	g.	s.	p..	own....	own....	selec	amid..	4	....	own....	.....	.....	d-red..	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own....
White	TAD	3	4100	163	s.	36x5	40x5d	own...	2	2-3¾x5½	22.5	4	l..	m	p.	s.	.....	h.	.....	....	.....	none....	.....	...	own....	g.	s.	p..	own....	own....	selec	amid..	4	....	own....	.....	.....	d-chn	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
White	TCD	5	5000	169	s.	36x5	40x6d	own...	3	2-4¼x6⅜	29.0	4	l..	..	p.	s.	.....	h.	.....	....	.....	none....	.....	...	own....	g.	s.	p..	own....	own....	selec	amid..	4	....	own....	.....	.....	d-chn	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
Wichita	A	1	1750	110*	s.	34x3	34x4	own...	2	4-3½x5	19.6	4	l..	..	t.	s.	Bosch..	h.	s,lWest..	....	.....	none....	.....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j.	3	7.3	Sheldon	.....	.....	d-chn	rad-rd.	t-arm	int-r-w.	int-sht	Ross...
Wichita	K	1	1750	118*	s.	36x3	36x4	own...	2	4-3½x5	19.6	4	l..	..	t.	s.	Bosch..	h.	s,lWest..	....	.....	none....	.....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	7.8	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	L	1½	1950	118*	s.	36x3	36x5	own...	2	4-3½x5	19.6	4	l..	..	t.	s.	Bosch..	h.	s,lWest..	....	.....	none....	.....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	8.6	Sheldon	.....	.....	worm	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Wichita	B	2	2250	118*	s.	34x3½	34x6	own...	2	4-3½x5	19.6	4	l..	..	t.	s.	Bosch..	h.	s,lWest..	....	.....	none....	.....	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j.	3	8.2	Sheldon	.....	.....	d-chn	rad-rd.	t-arm	int-r-w.	int-sht	Ross...
Wichita	R	2½	2500	144*	s.	36x4	36x7	Wauk.	3	4-3¾x5½	22.5	4	l..	..	p.	s.	Bosch..	h.	s,lWest.	cnt.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	8.7	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	O	3½	3450	165*	s.	36x5	36x5d	Wauk.	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	h.	s,lWest.	cnt.	motor.	Wauk..	1200	11	Stmbg..	g.	s.	c..	Hartfd.	Covert.	selec	amid..	3	11.7	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	Q	5	4000	165*	s.	38x6	38x6d	Wauk.	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	h.	s,lWest.	cnt.	motor.	Wauk..	940	9	Stmbg..	g.	s.	c..	Hartfd.	Covert.	selec	amid..	3	11.7	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilcox	U	¾	1300	120	p.	35x4½	35x4½	Cont..	3	4-3½x5	19.6	4	l..	..	t.	s.	Bosch..	h.	.....	cnt.	motor.	Pierce..	1200	18	Stmbg..	q.	s.	dd.	Warner	Warner	selec	unt-m.	3	6.5	Sheldon	Sheldon	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Warner
Wilcox	S	1	1700	128	p*	35x5*	35x5*	Cont..	3	4-3¾x5	22.5	4	l..	..	t.	s.	Bosch..	h.	l,West...	cnt.	motor.	Pierce..	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.5	Sheldon	Sheldon	own*...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	X	1½	2100	144	s.	36x4	36x5	own...	3	4-4½x5	29.0	2	l..	..	p.	s.	Bosch..	h.	l,West...	cnt.	motor.	Pierce..	1100	16	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	7.7	Sheldon	Sheldon	own*...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	Q	2	2500	150*	s.	36x4	36x3½d	own...	3	4-4½x5	32.4	2	l..	..	p.	s.	Bosch..	h.	l,West...	cnt.	motor.	Pierce..	1100	14	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	8.7	Sheldon	Sheldon	own*...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	P	3½	2900	154*	s.	36x5	36x5d	own...	3	4-4½x5	29.0	2	l..	..	p.	s.	Bosch..	h.	l,West...	cnt.	motor.	Pierce..	1100	10	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	11.7	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	W	5	.....	162	s.	36x5	40x6d	Wauk.	..	4-4¾x6¾	36.1	2	..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	Wauk..	1000	14	Stmbg..	v.	..	dd.	own....	own....	selec	amid..	4	8.7	Sheldon	Sheldon	Spicer*	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilson		1	1650	124*	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	l..	..	p.	s.	Eismn..	f.	.....	....	.....	.....	1800	18	.....	g.	s.	dd.	.....	Covert.	selec	unt-m.	3	....	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson	E	2	2550	144	s.	36x4	36x4d	Cont..	3	4-4¼x5½	27.2	4	l..	..	p.	s.	Eismn..	f.	.....	cnt.	motor.	Pierce..	1050	15	Marvel.	g.	s.	c..	Hartfd.	Covert.	selec	amid..	3	8.6	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson		3½	3250	160	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	4	l..	..	p.	s.	Eismn..	f.	.....	cnt.	motor.	.....	1100	12	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid..	4	8.75	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson		5	.....	160	s.	36x6	40x6d	Cont..	4	4-4½x5½	32.4	4	l..	..	p.	s.	Eismn..	f.	.....	cnt.	motor.	Pierce..	1100	10	Marvel.	....	..	dd.	Warner	Warner	selec	amid..	4	10.2	5Sheldo	n.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther	47	2	2800	150	s.	36x4	36x7	Wis...	..	4-4x6	25.6	4	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	15	Master.	v.	..	dp.	B&Bek.	own....	prog	amid..	4	....	Clfor...	Mthr..	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Winther	67	3	3600	150	s.	36x4	36x5d*	Wis...	..	4-4x6	25.6	4	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1300	14	Master.	v.	..	dp.	B&Bek.	own....	prog	amid..	4	10.0	Clfor...	Mthr..	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Winther	87	4	4000	156	s.	36x5	40x5d*	Wis...	..	4-4½x6	28.9	4	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1300	12	Master.	v.	..	dp.	B&Bek.	own....	prog	amid..	4	12.5	Clfor...	Mthr..	Blood..	in-tg..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther	107	5	4600	162	s.	36x5	40x6d*	Wis...	..	4-4½x5½	36.1	2	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	10	Master.	v.	..	dp.	B&Bek.	own....	prog	amid..	4	12.5	Clfor...	Mthr..	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther	127	6	5000	162	s.	36x6	40x6d*	Wis...	..	4-5½x5½	42.0	2	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	10	Master.	v.	..	dp.	B&Bek.	own....	prog	amid..	4	....	Clfor...	Mthr..	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Witt Will	WD16	1	2000	120	s*	36x3*	36x4*	Cont..	3	4-3¾x5½	22.5	4	l..	..	p.	s.	Eismn..	a.	.....	cnt.	motor.	Pierce..	.....	...	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Witt Will	WD16	2	2500	144	s.	36x3½	36x7	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	a.	.....	cnt.	motor.	Pierce..	.....	...	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wisconsin	B	1½	1650	136	s.	34x3½	34x4	Wauk.	3	4-3½x5¼	19.6	4	l..	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1200	15	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Wisconsin	C	2½	2800	156*	s.	36x4	36x6*	Wauk.	3	4-4x5½	25.6	2	l..	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1100	14	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.7	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Wisconsin	E	5	5000	166	s.	36x6	40x6d	Wauk.	3	4-4¾x6¾	36.2	22	l..	..	p.	s.	Eismn..	..	.....	cnt.	motor.	Wauk..	1300	12	Master.	g.	s.	dd.	B&Bek.	Cotta..	id-c.	unt-m.	3	11.5	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
W. S.	4	3½	.....	154	s.	36x6	36x6	Cont..	3	4-4⅛x5½	32.4	2	..	..	p.	d.	Natl...	h.	.....	....	.....	.....	.....	...	Zenith..	g.	s.	d..	Fuller..	Fuller..	....	unt-m.	3	....	Timkn.	.....	.....	wm-4.	sprgs..	sprgs..	int.....	int.....	Ross...

A Department of

BETTER MECHANICS

No. 46

Removing Endplay from the Hudson Crankshaft

By S. T. Williams

THE end thrust of the crankshaft of the Hudson Super-Six engine is taken by the flanges on the crankshaft resting against the next to the last bearing. As the crankshaft is of the counterbalanced type and carried on four bearings, the occurrence of endplay, however, is rare.

Indications of Endplay

Sounds caused by endplay are most evident when the engine is idling or when it is operating at slow speeds. With the engine idling by engaging and disengaging the clutch, a slight bump may be caused if endplay is present, and at certain running speeds quite a pronounced knock may be heard.

The best method of removing endplay is to completely replace the lower half of the third crankshaft bearing from the front of the engine with one that has sufficient length to take up all endplay. However, this is a tedious job, and if the amount of endplay is slight it may be removed easily in the following manner:

1. Remove the oil reservoir drain plug and drain the oiling system.

2. Remove the base.

3. By working the crankshaft back and forth and using a feeler gauge, determine approximately the amount of endplay present between the third bearing from the front and the crankshaft flange.

4. Remove the two bolts holding the lower half of this bearing in place and remove the bearing half.

5. Place the bearing half in a vise and using a rat-tail file carefully elongate each of the holes toward the front part of the bearing as shown in Fig. 2. The amount of elongation should be approximately equal to the amount of endplay in the crankshaft.

6. Replace the lower bearing half on the crankshaft and force the crankshaft as far toward the rear as possible.

7. Press the lower bearing half toward the rear against the crankshaft flange, replace the locking strip and tighten the bearing retaining bolts in place.

The position of the bearing then is shown, greatly exaggerated, in Fig. 3. In this position the front part of the crankshaft flange is pressed tightly against the upper bearing half and the rear crankshaft flange is pressed tightly against the lower bearing half so that all endplay is removed.

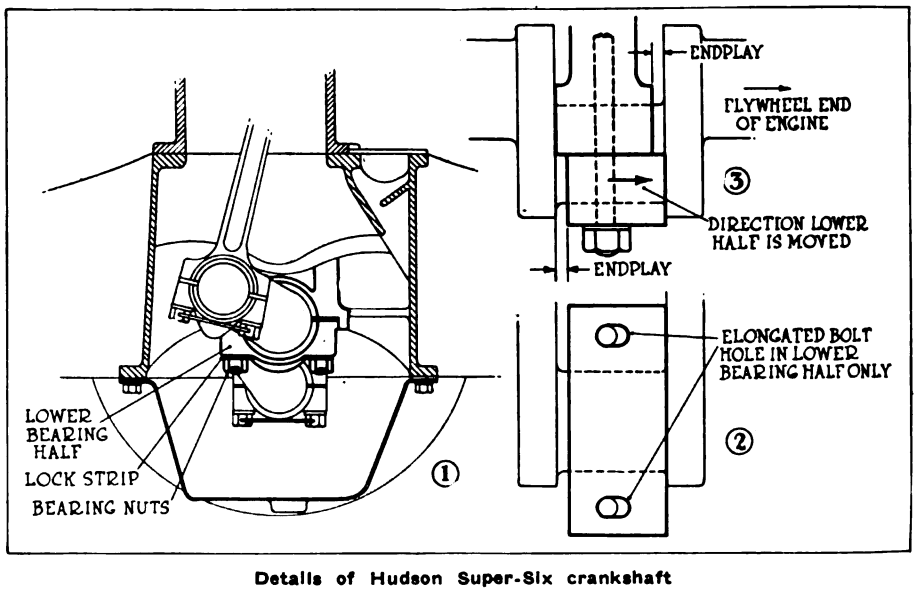
As the amount of endplay is usually slight, and as the cross-locking strip holds the bearing tightly in place, this method of repair is simple and effective. But, as before stated, if the amount of endplay is large, the proper method of repair is to install a new bearing.

Cleaning the Oiling System

It is usually advisable to clean the oiling system, and this is easily done inasmuch as the base is removed. To do this:

Remove the two bolts holding the reservoir screen in place and wash the screen with kerosene. The oiling troughs and reservoir should be cleaned in a similar manner and the oil suction pipes should be inspected to see that they are open and clean.

Before replacing the base, the oil trough should be filled with oil so that the parts will receive oil from the start. Otherwise the bearings may be damaged when starting the engine. After replacement the reservoir should be filled with three gallons of new oil.



Details of Hudson Super-Six crankshaft

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Repairshop Shortcuts

From The Motor World Roadman

No. 1465—TIMING WRENCH

This tool is used to insure accuracy in timing the Twin-Six engine as well as to reduce the time and effort required. It comprises a handle of ⅝ in. cold rolled steel 10 in. long, one end of which is threaded and screwed into a 2⅛-in. disc ¼ in. thick. This disc has 3⅝ in. holes equally spaced on its surface and the entire tool is given a cyanide case to promote durability. In using this tool the three bolts holding the timing shaft to the front end of the camshaft are loosened and the heads tapped slightly. The wrench is then placed over the heads of the three bolts and used to turn the gear in the required direction, after which the bolts are tightened.

No. 1466—DOWEL PULLER

A combination claw and offset chisel saves much time and trouble in removing front cover plate dowels. It is a piece of ¾ in. hexagon steel about 10 in. long, one end being forged into a claw and the other into an offset wedge. The claw is hooked in behind the nuts in the dowels, permitting them to be removed without any side strain, and the wedge end is of value in removing cover plates, etc.

No. 1467—REAR AXLE SHAFT PULLER

The rear axle shaft may be drawn from place with a special puller constructed of a 5 in. pipe capped with the standard malleable iron cap. The pipe is 4½ in. long and a 1¾ in. hole is drilled in the center of the pipe cap. Four guide lugs are riveted to the open end of the pipe fitting over the end of the bearing housing and permitting the ball bearings to slip into the pipe on removal. A washer resting against the cap permits the nut to be removed easily in removing the axle.

No. 1468—TESTING PISTON RINGS

It is essential that piston rings have the correct tension when compressed and the gap between the rings should be within the required limits. A device for testing this is illustrated. The rings are removed from the piston and the piston placed in the cylinders and tested with feelers at the skirt for clearance. The amount of this clearance is determined. This piston is then placed in the middle of a testing device and an amount equal to the amount of clearance placed beneath it. Another piston is likewise taken, placed in the cylinder and its amount of clearance at the skirt noticed. This is connected to the first piston by means of a wrist pin and placed as shown. Weights are then placed on the weight platform after the ring has been placed between the jaws, and weights are added until the clearance between the top bar and the outer piston is equal to the clearance between that piston and the cylinder. If the weights added exceed 9 lb. for Burd rings or 10 lb. for Muskegon Step-Joint rings, the rings are too strong and should not be used. After this the caps between the ring ends should be tested with a feeler gauge to see that they are not over .006 in.

For the Packard

THE Technical Service Department of the Packard Motor Car Co. has made a detailed study of the special tools required in its service work. These tools are designed to be made by any mechanic for his own use and in spare time. Though designed primarily for Packard work, many of them may be adapted to any car.

No. 1469—TESTING THE LUBRICATING SYSTEM

Oil pressure may be applied to the lubricating system by means of a testing tank duplicating the running conditions in the car. To do this the bolt cover of the crankcase is removed and the tank hose connected to the oil manifold. Ten lb. pressure is then applied to the oil in the tank and when the throws of the crankshaft are at the lowest point the drops of oil may be counted. The number should be between 30 and 50 per minute. The main bearings likewise may be tested by observing the flow of oil from them and all parts may be inspected for clearance.

No. 1470—REMOVING WRIST PIN BUSHINGS

Wrist pin bushings may be readily removed by means of a device whereby the end of the connecting rod is grasped between two jaws and the bushing pushed from place with a push-pin and pressure screw. A feature of this device is that the wrist pins may be removed without taking the connecting rods from the crankshaft.

No. 1471—HUB CAP WRENCH

A leather loop bolted to a steel handle may be used in removing or replacing hub caps. The leather loops should be of a diameter slightly larger than the hub cap to be removed, the leverage being effected by the shoulder on the handle which pinches against the hub cap.

No. 1472—ROD BUSHING PULLER

This puller is used in removing the starter motor shifting rod bushing and comprises a machine steel bolt 11 in. long and ½ in. in diameter. The threads are 13 pitch U. S. standard and they extend for 9 in. on the rod. On this threading a standard ⅛ in. nut and a piece of 1 in. pipe 3⅛ in. long together with two ⅝ in. standard washers are then slipped in place. Following this is a small knurled nut threaded into the shaft.

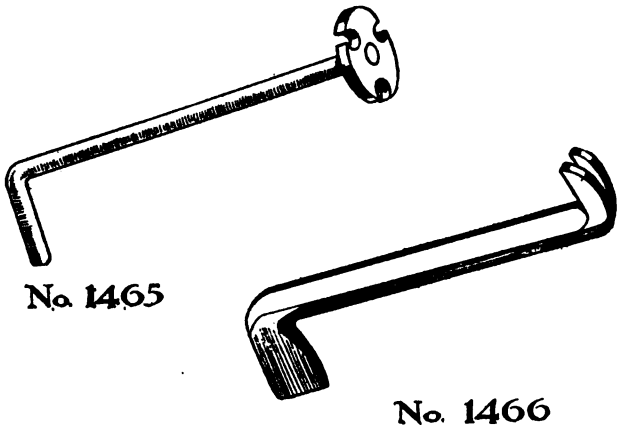
No. 1473—ADJUSTABLE SPANNER WRENCH

This tool may be used on any car where a spanner wrench is required and can be made in length and strength according to the work to be performed. Instead of having the two fixed jaws in the usual manner the jaws swivel on a common point and may be locked in place by a thumb screw. In rear axle work on the Packard the arms should not be more than 18 in. long and should be at least ½ in. by 1 in.

No. 1474—PUMP SHAFT PULLER

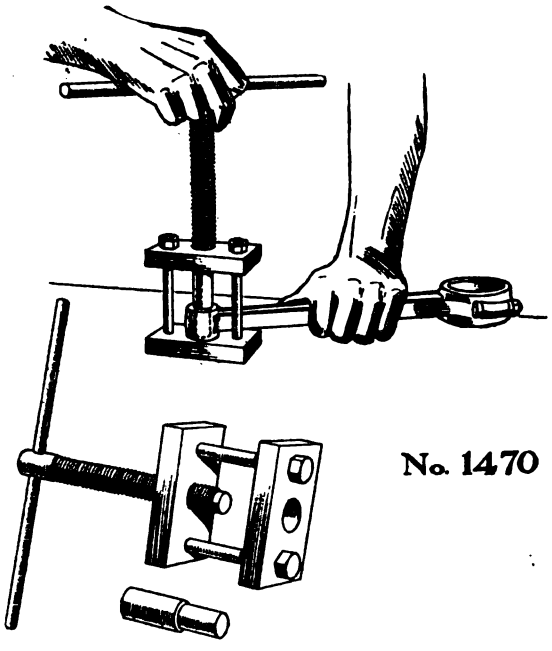
This tool is used in removing the pump shaft from the Twin-Six engine. It comprises a U-shaped piece of ¾ in. steel 8 in. wide between the legs and 1¾ in. high to the under side. In the center is a 17/32 in. hole through which passes a ½ in. bolt 13 in. long. The lower end of this bolt is turned down and threaded ¼ in. by 26 pitch U. S. fine thread and a standard ½ in. nut is placed beneath the cross bar. To use the small threaded end is placed in the pump shaft and the nut turned, pulling the shaft in place.

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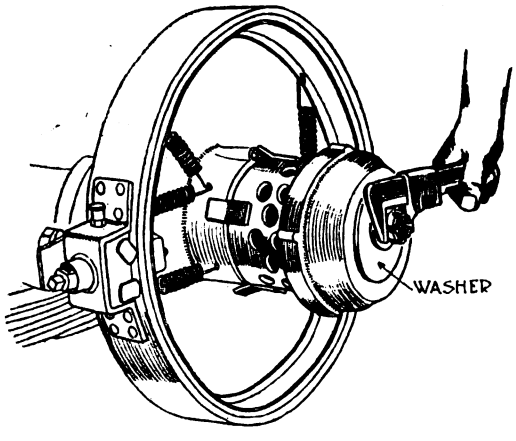


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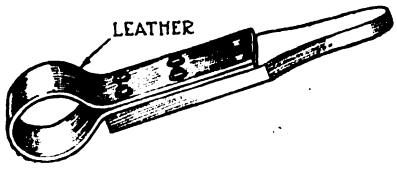
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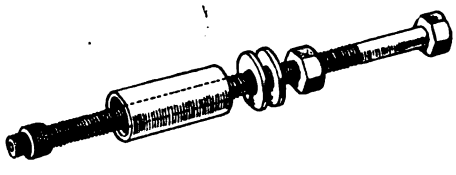
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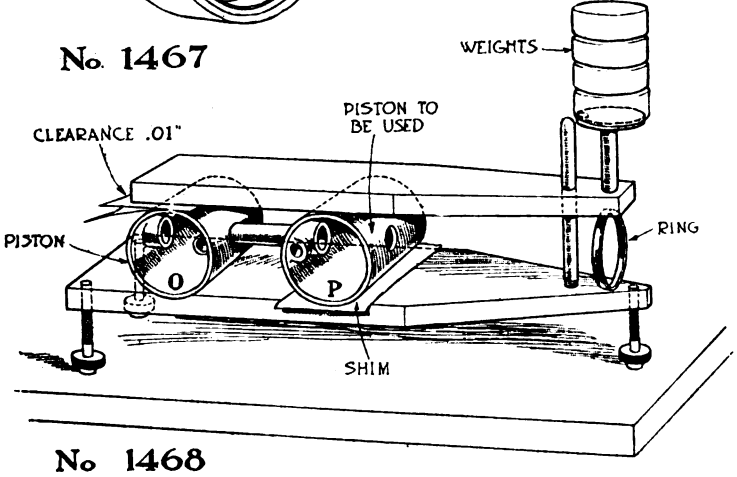
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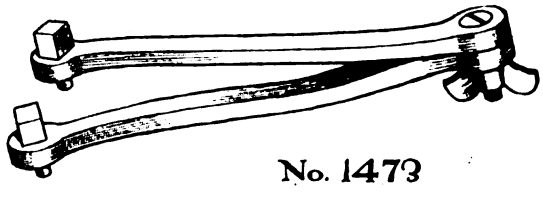
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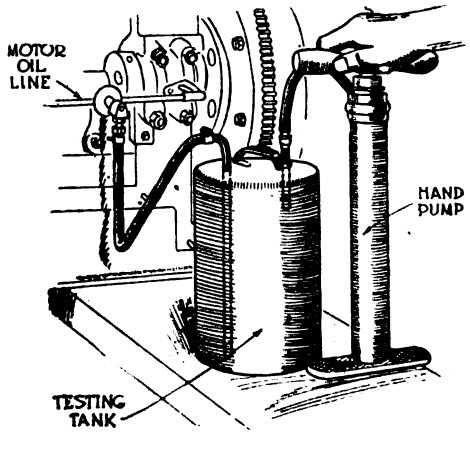
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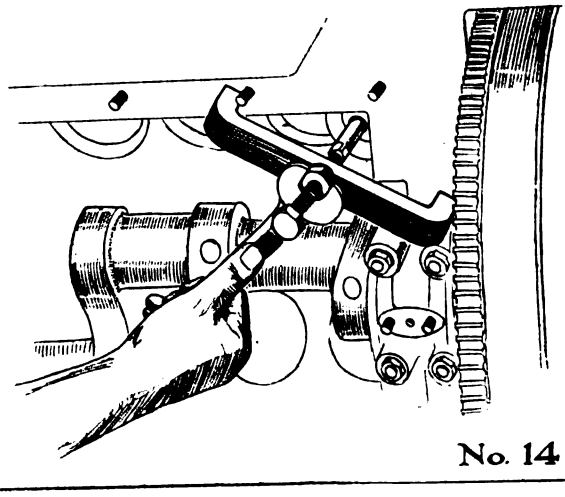
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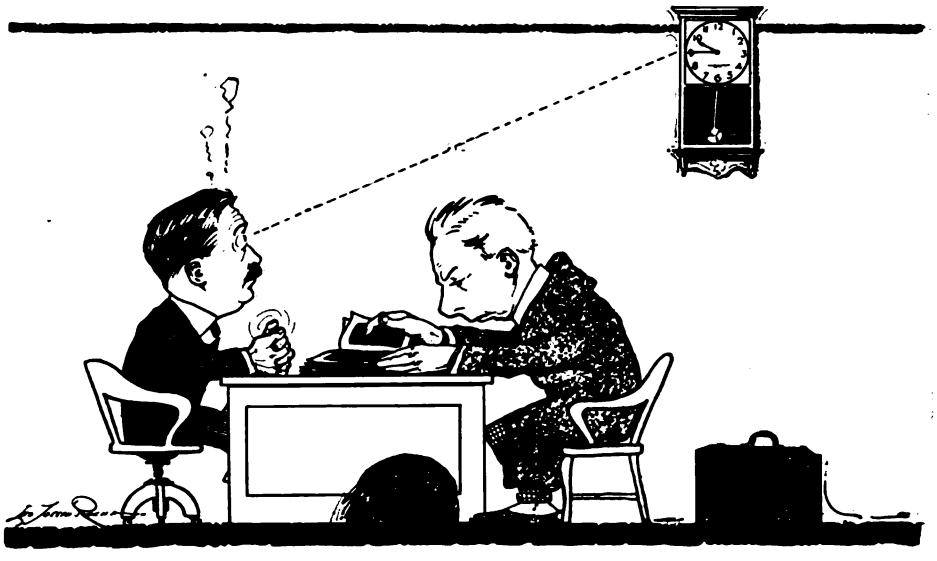


No. 1474

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Stealing the Buyer's Time

By Ray W. Sherman



"WELL, well! Still holding salesmen's receptions?" Reilly, who sold the Sennett in Callawassa, had waited fifteen minutes for Ben Doyno, the town's main supply dealer, to finish a session with a lean and hungry salesman who looked like a combination of the breath of life and a piece of worn string.

"Trying to pass a cheerful word to the poor knights of the road?" laughed Reilly, as he sat down in Ben's little office. The last time Reilly had had to wait for Ben the latter had explained that he gave every salesman a hearing as a matter of principle.

"Yes, still an apostle of the cheerful word—but I wish some of these salesmen would go out and choke!"

"Why, Ben! The idea," chided the Sennett dealer. "I'm ashamed of you! You shouldn't talk that way about those poor boys who ride in smelly smokers, play pinochle all night and sleep all day under short sheets. Just imagine that section of spaghetti that just went out finding a bed long enough to be comfortable. He would have to register twice in two hotels."

"Aw, don't talk so much; the days are getting short!" retorted Ben. "It's all right to give these salesmen time to talk, but what makes me sore is to have one of them presume upon my time. This lad who just went out has no more license to come in here and try to sell me goods than my own office boy has—nor as much."

"Whazzamat?"

"Aw-w-w, he comes in here with about twenty per cent of an idea about what he has to sell and when I should buy it and spends a lot of my time figuring out his own selling case. I don't see why he can't go over in a corner somewhere and assemble his evidence on his own time and then come in here and sell me the stuff in about five minutes."

"So?"

Ben continued as though he never had been interrupted: "This long lean piece of string that just went out travels for the Unit Motor Supply Co. He got his catalog in his hand and asked me if I wanted to buy anything.

"I asked him what he had. He said: 'Everything.' I told him I had quite a lot of that and asked him if he had anything else. Then he tried what he should have had well shaped up in his mind when he started, and that was the sale of certain specific articles.

"He apparently never noticed when he came through the store that we have a big bumper display, for the first article he told me I ought to handle was bumpers. I told him we sold a lot of bumpers and asked him to look over our display when he went out.

"I asked him if his bumpers would fit a Pierce-Arrow, and he opened the catalog and began to look for information. Finally he found the page he wanted and after educating himself for several minutes informed me that the bumper would fit any car because of its adjustable attachment.

"The cuss really has a good bumper, and I gave him a small order. After he had the order I managed to discover that the company supplies a very good window display idea with form letters and such stuff. I can use that and am going to get it. But he darned near forgot to tell me about it.

"Then he happened to think of heaters. He opened his catalog to heaters and we both began to learn. He read from the catalog and we both made comments. We had quite a nice little heater session. I think we both learned a lot about his heater. But then I asked him what it cost to attach the thing in time and labor he said he didn't know. Then he began to figure, and asked me about how long it would take to do this and do that and what I charged an hour for labor of that kind and he finally arrived at a result. I could have done all that myself.

"He used up a lot of my time and my own information getting his proposition in shape for me to buy. He stole my time and then asked me to give him my business. I don't think that's fair, do you, Reilly?"

"It doesn't sound quite reasonable, does it?"

"Indeed it doesn't! Where would you get off if you went to see a car prospect without knowing anything about who he was, or what his rating was, or what car he owned, or what type or model he was interested in, or anything about him? You would be operating at about three per cent of possible efficiency, wouldn't you?"

"Something like that."

"Some salesmen wonder why they don't get more glad hands from buyers. The salesmen complain that buyers give them frosty receptions. They say that buyers have no use for salesmen. They believe the buyer is their enemy and is interested solely in the question of price.

"Some of them never know that many a buyer in a big corporation, with a board of directors to handle, holds off from buying only in the hope that the salesman will come through with enough information so the buyer can go in and sell the people of his own organization.

"The buyer is a busy man. In my case I am both buyer and general manager and I have a lot of things to do. I am always glad to listen to these salesmen, but if a man has his story in hand it doesn't take me long to know whether I can use the goods or not. The length of time a salesman spends with me doesn't make the possibilities of an order greater unless he is shooting some real stuff all the time. What I do resent is this use of my own time to assemble the salesman's evidence.

"The same thing applies to every case of buy-and-sell. The man who buys wants to know what the proposition is. He wants to know all about it. He wants the facts presented to him in logical order. He wants the salesman to make the best selling talk possible in a minimum of time. If a salesman is operating on that basis and knows when to terminate the interview he has a darned sight better chance than the man who drifts in with a general idea of his line and marshals his thoughts afterwards. I don't mean that a man should have a sing-song set story. But I do mean that he should KNOW all about his goods so he can pick from his store of knowledge the most effective points for each individual case."

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Zone Restrictions and Garages

Editor Motor World: Recently I made a contract with a real estate agent to purchase a piece of land, free from encumbrances, for garage purposes. After investigating the matter I found that there were zone restrictions on that property against garages, motor repair-shops and manufacturing plants, but not against stores, automobile showrooms and garages for not more than five cars in live storage, not stating, however, the number of cars in dead storage.

Is it not possible to erect a building complying with the zone restrictions but after the building is completed to occupy it as a regular garage with a showroom and store for accessories in the front of the building?

The property is situated in the Murray Hill section of Flushing, on the south side of Broadway between Murray and Fourteenth Streets.—W. J. Maxwell, 318 Bayside Avenue, Flushing, N. Y.

Answer—While garages have not generally been classed as nuisances, it has been decided quite a number of times that they are prohibited under restrictions on real estate. In one case a person sought an injunction to prevent the erection of a garage on a resident street in Boston. It appeared that the restrictions on the property provided that no buildings should be used or occupied for a stable, for carpenter shops, blacksmith shops or for mechanical or manufacturing purposes or for any other business which might be offensive to the neighborhood.

Under the foregoing restriction the erection of the garage, which was designed to contain a large gasoline tank and was to be used for the storage and repair of automobiles, and also as a salesroom, was prohibited. In another case, however, where neighbors attempted to restrain the building of a private garage which was to be attached to a private residence they were unsuccessful. The Court held that when a private garage was attached to the house it was merely incidental and that the owner of a house had just as much right to attach a garage as he might have to attach an art gallery, a music room, or a conservatory.

Before laying the first stone you should put yourself in the hands of a competent local legal adviser who can compare the restrictions affecting your property with the decisions. If you do not do this but go ahead and build, you may have an injunction served on you and it will cost you a good deal of money before you are through.

Accept Certified Checks Only

Editor Motor World: I have a party who had a car very badly smashed up and he ordered me to repair it. I told him at the time that the car was not worth fixing up, that is the actual value of the car in the second-hand market. The bill was $195.65. He came and got the car and tried it out and it worked O. K. He gave me a check for this amount and seemed satisfied with the job, as it worked all right. But after getting the car home he stopped payment on this check and wrote me a letter saying that the work was not done right. Of course I was notified by the bank that this check was protested.

I would like to know what is the proper thing to do, as I think it was a put-up job to beat the bill.—Athol Garage, Ira J. Cass, Athol, Mass.

Answer—From time to time I have pointed out on this page how foolish it war for a dealer to take any but certified checks.

When a check is taken and it is returned N. G. the only thing a dealer can do is bring suit on it, which is troublesome and expensive. I will repeat again that dealers must not take uncertified checks unless they are willing to have them come back from the bank. The best thing for you to do under the circumstances is to put your claim in the hands of some local attorney and see if he cannot collect it for you.

Garageman Responsible for Property Left in His Care

Editor Motor World: On July 4 a party of four or five men drove a Ford car into a garage and asked a man who is not an employee, but who sometimes does gratuitously odd jobs about the place, whether they could leave the car for the day. He replied, "I guess so." Whereupon the men left the car in the driveway of the garage and left the place without asking for or being given a claim check.

A few hours later a man called and claimed the car, paid the storage and drove it away. Later some of the men who drove the car into the garage, and who claimed ownership of the car, came for the car, but were informed that some one had already claimed it.

The man who received the car claimed that the man who drove the car away was one of the party who came with the crowd when the car was left in the place. It appears that the party who drove away the car was not the owner of the car but a professional car thief.

Under these circumstances, are the owners of the garage liable to the rightful owner of the car? Your opinion will be greatly appreciated.—L. F. Wentzel, Aurora, Ill.

Answer—A garage keeper must be prepared to redeliver cars left in his care to his customers. If he is unable to do this either through mistake or negligence he will be held accountable the same as if he had made away with the property himself. If you accepted storage from the man who called for the car it would seem that there was a contract on your part to care for it. I think that this dealer had better be prepared for a lawsuit, and from the letter it looks as if he would have to pay for the car. Under the circumstances the best thing to do would be to retain counsel at once.

Used Cars Going Abroad

NEW YORK, Dec. 3—There appears to be an increasing demand for used cars to be shipped abroad. During the past 30 days one dealer has sent a total of 100 cars to Japan and in another instance, occurring during the past two weeks, a shipment of 20 used cars has been sent to Java. In every case, dealers report, foreign buyers approach them, the demand being entirely for open cars. Generally cars are put in first class mechanical condition and in some cases are repainted. It is stated that cars which at present are worth not to exceed $500 in the market here are bringing as much as $2,500 in Japan.

Dodge Capital Made $10,000,000

DETROIT, Dec. 3—Dodge Brothers have increased their capitalization from $6,000,000 to $10,000,000. Part of the increase will be used to defray the expense of the enlargement of the plant to take care of government orders.

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How to
Plan a New Building

10—Ceiling Height and Post Location

Usually Cheaper to Use Posts Even Though They Waste Space

By Harold F. Blanchard

FOLLOWING articles will continue the question of scientific layout, after that plans for standard plots will be considered, and then finishing, decoration and equipping of the interior will be described.

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets.

THE height of the ceiling need not be over 9 ft. in the clear for even the tallest limousines. If some trucks are to be stored these may be placed on the first floor, with the ceiling as high as necessary, and low ceilings may be employed on the other floors. The advantage in using low ceilings is that it reduces the height, and therefore the cost, of the building. Low ceilings also reduce elevator mileage. High ceilings, on the other hand, give better light and ventilation.

A clear space of 9 ft. means that the floor levels will be 10 or 11 ft. apart, since floorbeams and flooring will take up some room. Some allowance must also be made for steam and water piping.

Posts are usually considered a necessary evil, although here and there may be found a garage without them. They are used because it costs a great deal more to build a garage without them; usually the advantages obtained by their elimination do not pay for the extra cost involved. Not only are the steel floor trusses expensive but their depth of 2 to 4 ft. adds just so much to the height and cost of the building. Furthermore, it usually takes much longer to procure these steel shapes.

Posts Waste Space

The objections to posts are that they take up valuable space and hamper the movement of cars in and out of their stalls. The average diameter of a post is nearly 1 ft., and assuming that there is one for every three car widths, 1 ft. out of every 22 of the aisle frontage is wasted. But in addition to this there is the drawback that the posts seriously interfere with running cars in and out of their spaces.

From a structural standpoint it is best to put the posts at equal intervals, and in a 50-ft. garage, for example, two would be used, Fig. 1, but from a practical viewpoint it is better to bring them closer to the side walls, so that the cars will have more freedom in backing in and out. Everything considered, it is best to place the posts from 12 to 15 ft. from the walls, Fig 2.

An alternative method which has been used to some extent and is particularly applicable to two-story garages is the suspension of the second floor from the roof, Figs. 3 and 4. This calls for a heavy and more expensive roof construction. The larger roof span is a structural steel truss, built by a bridge company.

There is not the same objection to the tension rods on the second floor that there would be to posts, because the rods are only about 2 in. in diameter.

Entrance and Exit Width

Entrances and passages should be 10 ft. wide except under special circumstances, because this dimension is required for safety. With narrower ones there is always the possibility that somebody will be injured.

Unless the garage is of mammoth size a single opening for the entrance and exit of cars will be found satisfactory.

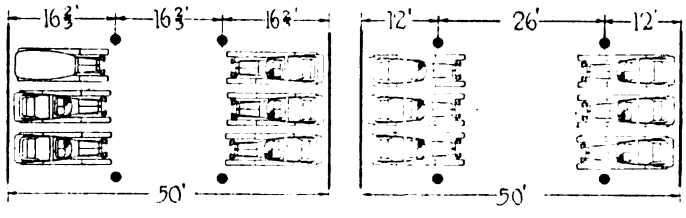
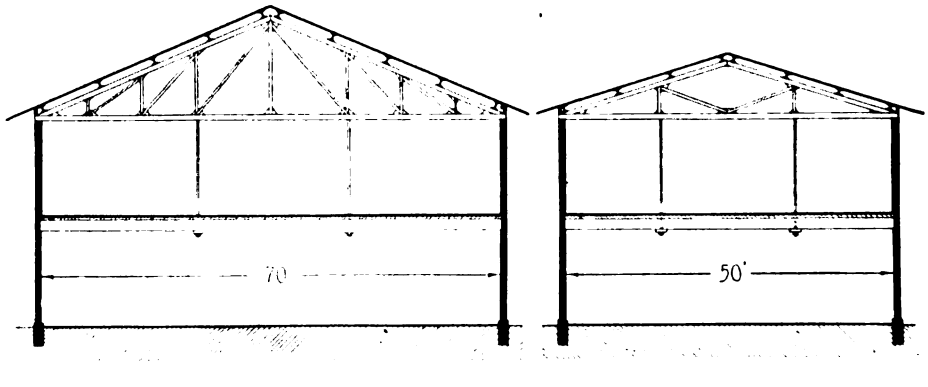


Fig. 1—Left—Use of two rows of posts dividing the width of the building into three equal sections. Fig. 2—Right—Placing the posts closer to the side walls makes car movement easier



Figs. 3 and 4—Typical methods of supporting the floor from the roof

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Motor World Window Service



Motor World Window Service *Fashion Camera Studios*

How to Trim This Window

In setting up Johnson's Freeze-Proof window display, one 30-in. pedestal in the center is used with material draped from the background. In the left-hand corner is a small platform, 18 x 24 in., with a two-foot pedestal on top; glass shelf and draperies around pedestal. In the right-hand corner a two-foot pedestal is used, glass shelf on top, then an 18-in. pedestal with smaller glass above and draperies on both pedestals. Drapery used in this display is velour, but can be substituted with material such as poplin, sateen or rep material of any kind. The large sign in the back is 22 x 28 Smaller one on stand in front is 14 x 20. These signs can be secured from a local sign writer for about $2 or you can make them yourself. Color of signs is brown with white background. Drapery can be same color as cards. Trim this window late Saturday night or early Monday. Monday before the display mail out Letter No. 1 below to your prospect list. Saturday mail out No. 2. Wednesday mail No. 3. These letters will compensate you for the effort you expend.

Letter No. 1

Did the radiator of your car ever freeze?

If it did we are sure you will never let it happen again.

If it didn't we hope it never does, for it is one of the most exasperating and expensive troubles you can have.

An expert repairman the other day remarked that he seldom got a radiator repair done for less than $10.

There is ONE way to prevent freezing.

That is: Use Johnson's Freeze-Proof. This is a scientifically prepared compound that makes the water in your radiator proof against freezing.

We have it in cans, at $1.50 each.

One to two cans is sufficient for average cars in average temperatures. The quantity you need depends on the size of your car.

This compound will not injure your car.

It is the cheapest form of insurance you can get against cold weather damage. Come in and ask about Freeze-Proof.

Letter No. 2

If you found your radiator frozen some cold day you would be rather sore at the weather man, wouldn't you?

And if you had to pay $10 or more to get the damage repaired you would consider it something like paying for a dead horse, wouldn't you?

Cold weather makes driving conditions different. We HAVE TO pay more attention to our cars.

To prevent freezing—which is both inconvenient and costly—there is nothing better than Johnson's Freeze-Proof.

We have this compound in cans at $1.50 each. The size of your car determines whether you need two cans or one.

This compound will not injure your car.

It is the cheapest form of insurance you can get against damage by freezing.

Cold days are here. Come in and ask about Freeze-Proof.

Letter No. 3

When you go to bed at night isn't it a soothing feeling to know that your car isn't going to freeze before morning and leave you with a bill of $10 or more?

And when you leave your car outside a theater don't you enjoy the show more if you know your radiator won't be all full of ice when you come out?

Paying for repairing a frozen radiator is like paying for an uninsured home after it has burned down.

It might not have happened IF—

There is no better way to prevent freezing and all its costly consequences than to use Johnson's Freeze-Proof.

We have it in cans at $1.50 each

It will not injure your car.

It is the cheapest insurance you can get against a frozen radiator and an expensive repair bill.

Who knows what hour the thermometer will start toward zero? Come in and ask about Freeze-Proof.

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Winter Business

Let's Have Your Ideas

Hold a Sales Contest

On to Berlin! Catch the Kaiser!

THERE is nothing like a sales contest to keep things moving in dull times. Hold a contest once a month from now on. Start with this On-to-Berlin-Catch-the-Kaiser contest.

First, determine your quotas. Knowing each man's ability and record, you can determine what should be a good month's work for him. Figure up what you think you should do in gross business for the month and assign a certain percentage of that to each man.

For example, your estimate of gross business may be $40,000. Jones may be the star man and perhaps all the salesmen, sitting as a handicap committee, will agree that Jones should do 50 per cent, or $20,000. The other men will be ranked accordingly. When Jones makes $20,000 he has done 100 per cent.

Now make your inducements. You can work this out to suit yourself, but here are some suggestions: Give no man anything except his regular salary or commission until he has made 100 per cent.

When he reaches 100 per cent give him 1 per cent extra on his 100 per cent business. If he makes 125 per cent give him 1¼ on the whole; 150, 1½; 175, 1¾, and 200, 2. Thus, the higher he goes the faster his earnings pile up, just the same as do the sliding scales of some distributers.

Or, you can offer bonuses for certain results. You can offer extra percentages on certain used cars, sedans, limousines, accessories or any other articles you wish to move quickly. These may be changed daily.

Also, don't forget the prize. In addition to the money earnings give a trophy of some kind. It may be a watch, a cup, an overcoat, a trip to the factory or New York show, or anything other than mere money. Attach some honor prize element, something the winner can display as a mark of his winning.

Start the men on the zero line.

Use bulletins every day. Write on sheets of paper such things as: "Jones almost got the Kaiser yesterday. See 'em go!" Or: "At 'em boys! Show 'em what!" Or: "Come on, Jack! Spin a bit!"

If Jones passes 100 per cent let him keep right on going. Let him chase the Kaiser to Russia or Austria or any other old place. Run a bulletin: "Jones will have the old boy in Hongkong if somebody's wind doesn't give out pretty quick. He passed 130 per cent yesterday."

You might run an ad, signed by all the salesmen, stating that you have a contest on, a Catch-the-Kaiser contest, and that they invite their friends to drop in and see just how your boys are going after Kaiser Bill. The newspapers might be glad to give you publicity on the contest.

Directions for Catching the Kaiser

1—Study the directions given on this page. Determine how you are to handle your quotas and other details.

2—Tear out the opposite page and mount it on the wall. Stick it up with pins.

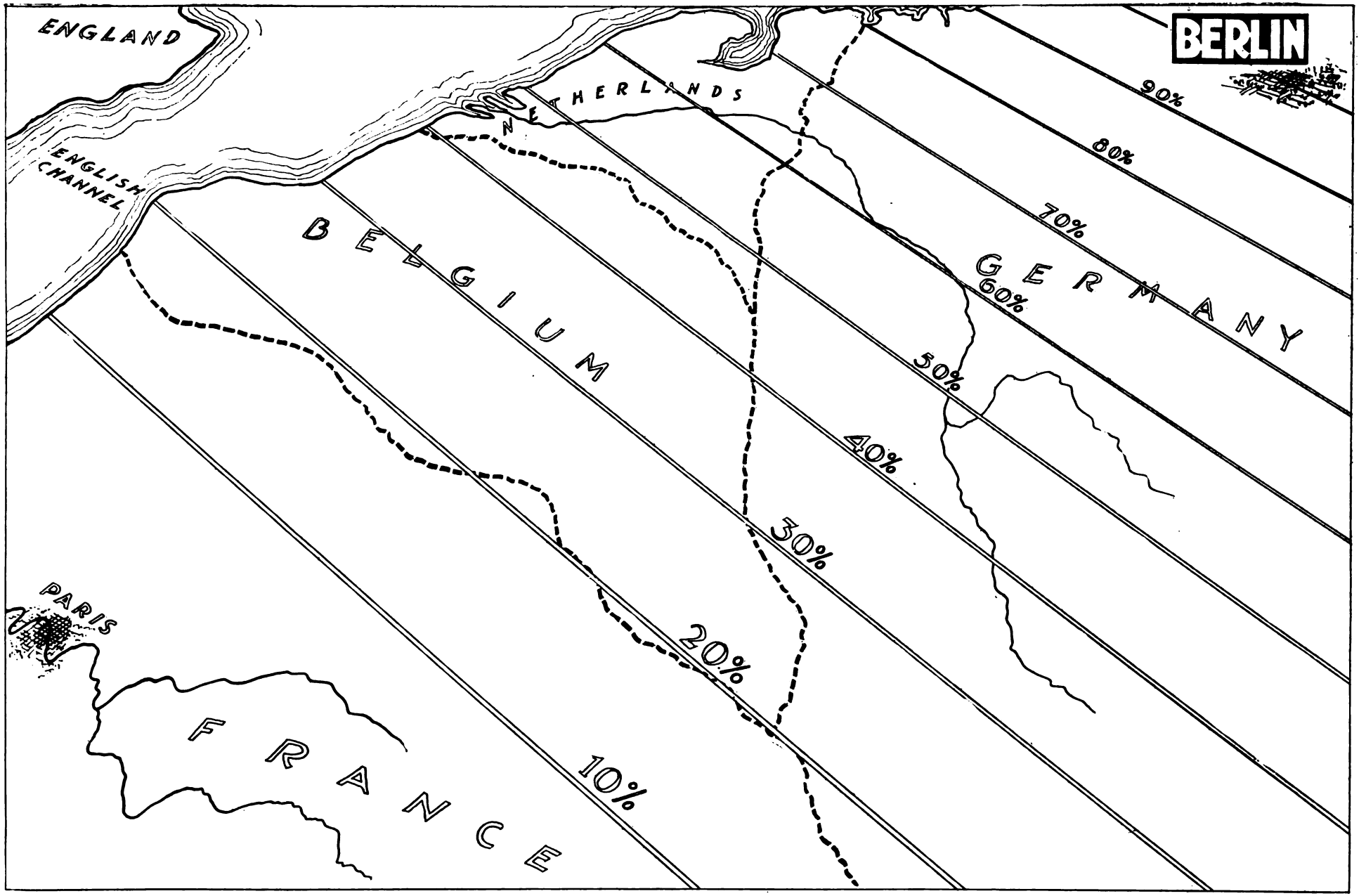
3—With sharp scissors cut out the kaiser and enough soldiers. Mark each man's name or initials on the soldier that is to represent him. Use pins to fasten the figures to the map. Put the man's forward toe on the mark he has reached. Start all the men on the zero line. As a man moves along mark his day's progress each morning with a line, ending the line in an arrow at the man's toe. Thus, the course each man has covered will be a line filled with arrows, each arrow marking the end of a day's work.

Here are your five men and the Kaiser



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On to Berlin! Catch the Kaiser!



Tear out this page, paste it on cardboard, hang it on the wall, cut out the soldiers and kaiser on the opposite page and start the contest. If you want a larger map have one redrawn or have an engraver make from this page a line cut as large as you need

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Editorial Observation

What Has Become of the Factory Publicity Men?

IN days gone by—and not so very far gone at that—the mails were filled with the efforts of the publicity men of the motor car manufacturing companies.

They used to fill the columns of newspapers with mile after mile about the joy of life and the hardness of steel, and they sold the public on the big idea that without a "pleasure" car life wasn't worth living.

The old stuff was great stuff in its day and helped make the industry the enormous thing that it is, but to-day something else is needed, and the publicity men who seem to be hibernating a bit have a fine chance to do something they never did before.

They MADE the industry. Now they should SAVE it.

One of the adverse factors is public opinion. The public believes the car is NOT an essential. It still classes it as a "pleasure" car and not as a "passenger" car.

This frame of mind on the part of the public is reflected in the newspapers, which aim to give the public what it wants. Because of this attitude newspaper men at Washington have been quick to grab every suggestion about curtailing the industry and make big stuff about it. The papers have been so filled with this negative publicity that the industry has been financially injured. Its credit has been affected at the banks. Damage has been done.

Officials Convinced Attitude Is Wrong

To-day the war officials are becoming convinced that this attitude is not entirely right. Latest news stories are to the effect that there probably won't be much curtailing and that things will be left to work themselves out on a good and right basis—as the industry suggested.

But in spite of this the old public opinion still stands. And this opinion is a menace that hangs over the industry. The fact that the public considers the motor car a non-essential makes it easy for "things to be done to" the industry. And the joke of it is that the public doesn't really believe this; it only thinks it believes it. It has a sort of half-cocked opinion based upon the atmosphere surrounding the term "pleasure"—and "luxury."

Most car owners insist that their cars are necessary, yet many of them class cars as a non-essential. They overlook how necessary their own cars are and think only of the other fellow. Neither do they know that 80 per cent of the cars are owned by farmers and that millions are used for business purposes.

The publicity men of the factories can change all this. They have the ear of the newspapers.

They should now be sending out stories and interviews—with fact—about the essential character of the industry, about how big it is and how able to do what the man on page 5 this week is doing, and about what a disaster it would be if our national industries were curtailed instead of being expanded at this time.

There is no need of telling the average publicity man what to say. Before a suggestion is half made he is miles ahead of it and has the job half done.

There are, however, one or two occurrences of the last few days that Motor World would like to mention:

One manufacturer sent out an interview to the effect that now is the time to buy because the industry is likely to be curtailed. This may stimulate sales, but it is not very constructive.

"Passenger" Car—Not "Pleasure" Car

A dealer in a western city has the terms "pleasure" and "luxury" in his advertising in big type. This should be avoided.

The term "passenger" car should be used in all writing and conversation.

One show manager has the term "pleasure" car in his show literature. He should have been a bit more thoughtful.

All newspapers are prone to say "pleasure car." Sell them on the correct term.

The war and winter may have made it seem to publicity men that the field of their effort has shrunk. The fact is there is greater need for them than ever before. What this industry needs is a few miles of real, honest, constructive publicity, such as the geniuses of the industry can turn out by the ream.

There should be no attempt to oppose the Government. That is not to be considered for a minute. But the citation of the facts about the industry will do a great deal of good to the whole country.

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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome—especially if they are timely and brief.—THE EDITOR.

The Threatened Curtailment

Editor Motor World: Referring to the Nov. 7 issue of Motor World covering the subject of a threatened tie-up of the automobile business by the Government, we beg to say that we think your stand is entirely correct, and that while it is perhaps reasonable to cut down the production of automobiles to a certain small extent, if it were really found necessary, such drastic measures as those originally proposed would not only cripple one of the country's most important industries, but it would not appreciably benefit the War Department in the way that they expect and is, we believe, entirely unnecessary at this time.

We have heard through other channels that the Government has reconsidered, and their attitude is very much changed over that originally assumed.

If you can advise us of any specific way in which we can add our "mite" in the way of adding our small weight in objection on this measure, we will certainly be glad to know it. Not that but what we believe in upholding the Government in any measures which are necessary, but we most certainly do not wish to see snap judgment or unseasoned judgment prevail either with regard to the automobile business or any other business.—The W. R. Wheeler Co., W. R. Wheeler, President, Indianapolis.

Is Congress Crazy?

Editor Motor World: The five best things in Motor World, you say? They are all best—but here goes: The Reilly articles; Repairshop Shortcuts; Better Mechanics; Winter Business; Lay-out for New Garages. There are five and I could easily name five more, and then some.

Your comment on the liability of adverse legislation on passenger cars is timely.

Is Congress crazy? First a tax which will fetch in millions—then she wants to kill the goose which lays this golden egg. Something loose somewhere.

Seventy-five per cent, at least that, of car owners in this territory use their cars for daily transportation. We have no trolley lines and poor railroad service, so we depend upon the passenger car. It would hit us mighty hard here.

Then, who has bought Liberty bonds more liberally than the passenger car builders, the salesmen and repairmen? If they cut into our income from 40 to 75 per cent, what can they expect when future loans are floated? Most absurd and ridiculous thing I ever heard.

Yours in the interests of better legislation—sensible legislation.—C. R. Pierson, Foreman, Hart Motor Co., Salineville, Ohio.

Offsetting Uneasiness

Editor Motor World: We are to-day sending out a letter over the signature of our president that is undoubtedly of interest to you as it answers a question in a letter you sent us on Nov. 12.

It is evident that there is a distinct feeling of uneasiness in the sales organizations of the manufacturers regarding what will develop and how they will fare from any Government interference with motor car production.

I hope you find the copy of the letter enclosed interesting.—Paige-Detroit Motor Car Co., A. L. Tisch, Advertising Department, Detroit, Nov. 20.

TO ALL PAIGE DEALERS.

Nov. 19, 1917.

Realizing that there have been a great many newspaper reports relating to the automobile industry, which are entirely unfounded, coming from unadvised and hysterical people, I wish to advise you that for the past two months I have been in Washington conferring with Government officials and have been in close touch with conditions as they exist in Washington.

At first some officials felt that there would be a great shortage of raw materials in this country to complete Government work and to supply the manufacturers of the country with sufficient raw materials to carry on their increased business of the Nation. Some officials thought it may be necessary to restrict the deliveries of certain steel to automobile and other manufacturers, but after the situation of raw materials had been canvassed and the amount the Government would need, they discovered there was ample materials in this country to take care of their requirements and the requirements of the manufacturers.

The Government officials have found out that they have not been able to spend the amount of money that they figured on disbursing, because it takes time for manufacturing concerns to get ready to produce.

All this time the suppliers of raw materials have been running to their limit and really to-day there is a large surplus amount of materials of all kinds and descriptions. In fact, there is so much raw materials on hand in the manufacturers' hands to-day that the Government need not supply the manufacturers with materials for the production of a great deal of what they require.

The Government will want all the automobile companies that have the equipment to do a certain amount of business for them, and present indications are that they will ask the automobile companies to reduce the number of cars which they delivered last year to not over 40 per cent. In other words, 60 per cent of all the automobiles manufactured last year can be manufactured this year in numbers.

Now, what will be the dealer's position? I think if a dealer will simply look at this point wisely, he will see there will be about two buyers for every automobile and the dealer will therefore be able to get the full list price and make money on second-hand cars, which he takes in trade, because the second-hand market for cars to-day is far above the supply and will be this coming year. So you will not only make considerably more money per car than you have ever made before, but it is my firm belief that every dealer in the United States who handles his business on a proper basis will make more money than he has ever made before in his history.

You need not fear that the Government with the people it has at its head, who have good sound business judgment, are going to put the automobile industry or any other industry in a position of jeopardy, because they would be cutting their own throats by doing so.

I firmly believe that this year both the dealer and manufacturer will actually make a better showing in dollars and cents and the automobile sales end will be in much better condition than the industry has ever been in prior to this time in the last three or four years.

So don't get hysterical at these unauthorized rumors which you read in the newspapers. You will find pages written about what is going to happen to this industry or that industry by a lot of people who wish to run into print.

I also wish to make another statement, that you don't need to be afraid of the gasoline situation. More gasoline is being produced in this country by a larger per cent than has ever been produced before, and there are not enough tank steamers to convey any large additional amount from this country to foreign countries.

So just go merrily on and prepare yourself for a good season on a better and sounder basis than you worked on before in many a year.

Yours very truly,
PAIGE-DETROIT MOTOR CAR COMPANY
H. M. Jewett, President.

Stegeman Truck Reorganizing

MILWAUKEE, WIS., Dec. 3—A complete reorganization of the Stegeman Motor Car Co. is in progress. A. J. Mayer has succeeded Oscar Stegeman as president, the latter having resigned. Mayer was formerly treasurer of the Mayer Boot & Shoe Co. E. M. McLean has become sales manager. He was formerly advertising manager of the Four Wheel Drive Auto Co., Clintonville, Wis. L. S. Pease has succeeded L. G. Schertl as secretary and treasurer. The new organization will continue to manufacture six-cylinder trucks but will confine the line to 2, 3½ and 5-ton capacities, eliminating the 3, 4 and 7-ton sizes.

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How Long Will the War Last?

And How Are You Going to Keep Your Business in Such Shape That It Will Meet War Conditions?

Have you your business well in hand?

Do you control it as you control a horse or a car?

Or do you let it run along and go where it wants? Do you run the business or does it drag you wherever it will?

Are you guiding it in safe channels TO-DAY or is it slipping into the chasm that war conditions are bringing for some business men?

ONE fact stands out: The man who KNOWS his business, who has everything well in hand and who knows the instant anything begins to go wrong, has a far better chance in the present situation than the man who goes by guess.

There is no guessing in successful warfare. And there is no guessing in successful wartime business.

To eliminate guesswork war—men install efficient systems. They KNOW. And similarly business men who successfully meet war conditions KNOW. They have system in their businesses.

Have you good system in YOUR business?

Do you KNOW what difference present conditions have made in your percentage of overhead?

Do you KNOW just how much money you must take in every week in order not to get below the danger line?

Do you KNOW what departments are paying and which departments may have to be eliminated if a long war makes big changes in conditions?

Do this:

1—Go to some young accountant in a bank and get him to help you put your business on a real systematic basis. Get him to start you on the right business road.

2—If you do not find a business system that suits you ask Motor World about the Motor World Simplified System of Accounting.

This Motor World system was brought out two years ago. Since then it has been installed in nearly 2000 garages and salesrooms. It has saved money for its users. It has helped check leaks. It has shown profits. It has thrown the light of day on losing departments. It has turned businesses from the direction of failure to success.

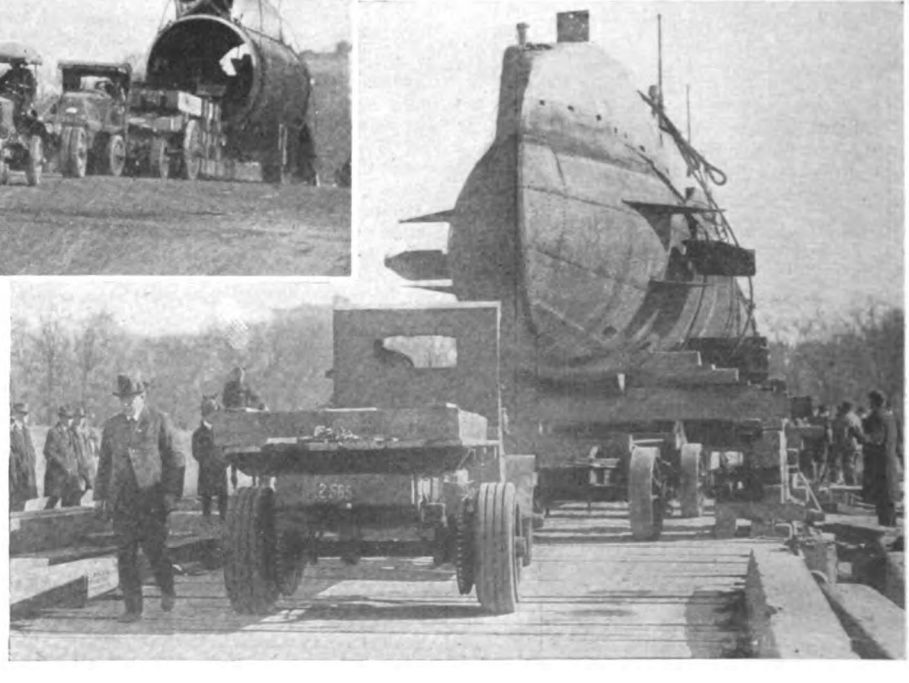
What this system has done for others it can do for YOU. Read what is said about it by W. L. Shephard of the Shephard Garage, Jerseyville, Ill.:

"We have used the MOTOR WORLD *system for the past year, since Jan. 1, and find it very complete and thorough, as it gives us all the information we need relative to our business. We changed to your system from a much more complicated system of cost accounting, which we had been using for about one year, and find that your system fills our needs with much less chance for error. It is much more accurate. We believe your system is the one best designed for garage use, and have advised many of our friends in the business to use it."*

Write to Motor World TODAY and get started at once so you will go through into the new year on a firm business basis.

"Docking" the Submarine U-Buy-A-Bond





Two views showing a German submarine being "moored" in Central Park, New York, the purpose of its presence being to stimulate the recent Liberty Loan drive. It was used as a Liberty Loan booth and no one was admitted who did not possess a bond. It was transported in three sections each weighing from 30 to 80 tons, according to estimate. As indicated by the upper picture four large trucks, each 5 tons or over, were required to haul a section. The view at the right shows how a 5-ton truck was used for steering the big truck which carried the bow unit of the U boat

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The RETAIL NEWS

SOUTHWEST

Simpson & Gilmore, Windsor, Mo., have bought the S. P. Callison Garage.

Young & Co., Joplin, Mo., have added a line of automobile supplies to their garage.

Pioneer Garage, Eugene, Mo., has consolidated with the Garage & Transfer Co., and will be known as the Pioneer Garage & Transfer Co.

Chillicothe Motor Co., Chillicothe, Mo., will erect a new building.

Main Street Repairshop, Carterville, Mo., has opened and is in the market for accessories.

Earnest Strasser, Minston, Mo., has bought a half interest in the City Garage from Wesley Lee and will take active management.

Hunter & Karr, Bunceton, Mo., are enlarging their garage.

Allon Motor Co., Bartlesville, Okla., has moved into its new quarters on East Third Street.

Gloyd Garage, Strong City, Okla., has succeeded the Durham Garage.

Jack Leslie, Davenport, Okla., has bought the Groom & Ingothron Garage.

Perry & Schomyer, Calumet, Okla., have bought Samolson & Talley's Garage.

J. A. Price Hardware Co., Cheetah, Okla., has added a line of automobile supplies.

Tom Welsh, Guthrie, Okla., has bought the garage of J. D. Van Hoozer.

W. S. Forrest, Ardmore, Okla., has sold his garage on South Mill Street to William Brown, Ringling, Okla., who has opened an accessory store.

W. E. Copper of Belleville, Kan., may put up a big vulcanizing plant in Manhattan, Kan.

J. T. Smith & Son, Erie, Kan., have opened a vulcanizing shop.

Toevs & Goss, McPherson, Kan., have succeeded Toevs & Heaston in the ownership of their garage.

George Rogers, Ellsworth, Kan., has sold his garage to Avis, Brown & Rozelle.

Love Bros. & Essex, Douglass, Kan., have bought a building and will remodel it.

F. M. Luther & Son, who has a garage in Cimarron, has bought a garage in Bucklin, Kan. M. Neal will be in charge.

Central Texas Automobile Co., Waxahachie, Tex., has succeeded the Waxahachie Overand Co. **W. A. Roberts is president; R. C.** Johnson, vice-president, and J. G. Brown, secretary-treasurer.

J. L. C. Woods, Clay Center, Kan., has opened an accessory and tire repairshop.

Earl Avis, Kanopolis, Kan., has bought the George M. Rodgers Garage.

Vern Maupin, Lucas, Kan., has bought the C. A. Sumner Garage.

McSwain Garage, Tishomingo, Okla., has installed a new machine to charge batteries.

S. L. Adams, Alva, Okla., has bought the garage of F. L. Franz.

Roush Bros., Custer, Okla., have bought the garage of V. E. Rhymer.

Sharp & McCurley, Bennington, Okla., have bought the City Garage.

James & Keeler Motor Co., Bartlesville, Okla., is the new firm which has been formed by joining the interests of C. W. James and Fred Keeler.

Tom Welch, Guthrie, Okla., has bought the Guthrie Garage from J. D. Van Hoozier.

T. E. Alexander and C. C. Campbell, Chickasha, Okla., have bought the repairshop of the old Dunham Garage and will operate it under the name of the Ozark Garage.

Roscoe Spalding, Lindsay, Okla., has sold his garage to A. F. Jefferies and Simon Patton.

William Perry and F. L. Schemyer, Calumet, Okla., have bought the Calumet Garage and machine shop formerly occupied by L. T. Samuelson and B. F. Talley.

Economy Tire Co., Joplin, Mo., has opened salesrooms on East Fourth Street.

H. L. Lee, manager of the Lee Motor Car Co., Chillicothe, Mo., has bought all the stock of the concern and is now sole proprietor.

F. C. Brickey, Booneville, Mo., dealer in Ford cars, has bought the City Garage from Elkin Bros. Mr. Brickey has changed the name of the garage to the Bunceton Auto Co.

D. C. L. Tire Service Co.'s two-story concrete building at Twenty-sixth and McGee Trafficway, Kansas City, Mo., will be ready Feb. 1.

Walsh & Johnson Electric Co., Oklahoma City, Okla., has opened a branch at 718 North Broadway.

Morrison Horn and Grover Horn, Sedgwick, Kan., have sold the Sedgwick Garage to Mr. Hobble and Mr. Edgington.

J. L. C. Woods, Wamego, Kan., has closed out his stock of accessories.

W. E. Coppers, Manhattan, Kan., is planning a large steam vulcanizing plant.

The Willard Service Station, Hiawatha, Kan., will be moved into the building that will be vacated soon by the Stewart Monument Co.

J. W. Horn, Salina, Kan., has bought the interest of Victor Nelson in the Salina Buick Co. and has moved to the building on North Santa Fe formerly occupied by the Lamb Auto Sales Co. The Lamb Auto Sales Co. has moved to North Seventh Street.

Haden Bros., Cunningham, Kan., have bought the Rayl Garage.

Don Osborn, Cherryvale, Kan., has sold his Ideal Auto Garage to N. W. Brown.

J. T. Godell, formerly of Kansas City, has Bought the Belpre Garage from Charles Barrows, Belpre, Kan.

Lon Cave, Olathe, Kan., has bought the Levi & Hamlet Garage.

Lutz Bros., Sharon Springs, Kan., have bought John Steele's interest in the local garage.

Fred Byerly, Smith Center, Kan., has entered into partnership with Ray Cole in the garage business.

Charles Keepers, Olathe, Kan., is opening a new automobile filling station in the Weaver Building.

Homer McCalla, Phoenix, Ariz., is opening a supply house.

Kern & Kleopfer, Riverside, Iowa, have succeeded the garage firm of Kleopfer Bros.

White Motor Car Co., Dallas, has changed its name to the White Co. of Texas, handling White motor cars. New and bigger quarters are to be secured.

Overland Automobile Co., Overland distributer, Dallas, has closed a contract for the erection of a two-story building 132 ft. square. The building will cost $150,000 and will be one of the modern automobile buildings in the Southwest, and will be located on South Ervay Street.

Munger Automobile Co., Cadillac distributer, Dallas, has increased its capital stock from $25,000 to $150,000. Roy Munger is president of the company. It is planned to expand the business.

Otto Hille, Dallas, has leased ground at 1517 Young Street, where a $20,000 building will be erected for a storage battery and electric starter service.

Firestone Tire Service Co., 2015 Main Street, Dallas, now occupies its new building.

Brittson-Goodale Co., Mitchell distributer, Dallas, has changed its name to the W. F. Brittson Motor Co. W. F. Brittson is head of the concern.

New Garages

G. Z. Price (addition).....Richmond, Kan.
Cline-Dow Garage (addition)....Moran, Kan.
Ellesbury & Yingling Bros. (remodeling) El Dorado, Kan.
Tonkawa Auto Co. (addition), Tonkawa, Okla.
W. S. Forrest.....Lathrop, Mo.
T. J. Combs & Son (addition)..Elkhart, Kan.
J. H. Lucky.....Junction City, Kan.
E. H. Swenson.....Clay Center, Kan.
Andrew Pierce.....Neodesha, Kan.
Burchinal & Chitwood Garage.Conway, Kan.
Fred Hastings .....Jewell City, Kan.
T. P. Cain Motor Co.....Wichita, Kan.
Jones & Emeridge.....Fort Towson, Okla.
Capheart & Harper.....Stuart, Okla.
E. C. Green.....Wynona, Okla.
Top Cooper .....Ardmore, Okla.
The Dix Company.....Plevna, Okla.
The Francis Sleeper Motor Sales Co., Bartlesville, Okla.
Davis Motor Co.....La Platte, Mo.
Arthur Burkheart.....Appleton, Mo.
Frank Fisher .....Sedalia, Mo.
Turner McCormack .....Oak Grove, Mo.
Supply Company .....Sarcoxie, Mo.
Success Motor Car Co.....Joplin, Mo.
Crewson & Petty.....Versailles, Mo.
M. A. Sears.....Cleo, Okla.
S. H. Cross.....Arnett, Okla.
Kitto & Williford.....Ardmore, Okla.
Ardmore Battery Co.....Ardmore, Okla.
J. W. Beggs.....Beggs, Okla.
Roscoe McGriffith.....Tulsa, Okla.
Montzer Garage Co.....Pawnee, Okla.
M. R. Mansfield.....Cherokee, Okla.
Welch & Pope.....Macksville, Kan.
Williams & Pinneo.....Hillsdale, Kan.
Richard Armantrout.....Scott City, Kan.
Hawley Bros..... ....McPherson, Kan.
John Cornish .....Elsberry, Mo.
Fred Grimes.....Hillsboro, Tex.
Bell Bros. .....Westbrook, Tex.
Yeager Bros. .....Farmersville, Tex.
Citizens Auto Co.....Laredo, Tex.
R. G. Whitten & Sons.....Corsicana, Tex.
Mrs. Lillian Maul.....Omaha, Neb.

MIDDLE WEST

Lance Brackneil, Elkton, Mich., has opened a garage and repair shop in the implement building north of the Cornell drug store.

Fred C. Wood, Cleveland, has secured the sales and service station formerly occupied by the Stark Auto Co. at 8920 Euclid Avenue and has taken the State agency of the Olympian line in addition to the Daniels Eight, of which he is Middle West distributer.

Langley Motor Supplies Co., Fort Wayne, Ind., has opened business with the tires, accessories, gasoline and oil departments of the Fort Wayne Overland Co.

F. J. Durling now heads the King-Cleveland Co., 1924 Euclid Avenue, Cleveland, succeeding H. A. Mitchell, who has entered Government service.

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L. & M. Auto Supply Co., Youngstown, Ohio, is building an addition, which will give 1000 additional square feet of floor space. The new building, of tile construction, will be connected up with the present building and a new front built to enclose the two. The stock of accessories has been increased.

Grieger-Steinhart Automobile Co., Fort Wayne, Ind., is the new name of the company formerly known as the Steinhart-Randall Co. The company will handle the line of cars formerly carried—namely, the Cadillac, Dodge, Milburn and G. M. C. trucks, and will also distribute the Oldsmobile. W. H. Wallace is secretary and manager.

Killewald Garage on Front Street, Mt. Clemens, Mich., is now owned by G. W. Warner and his son, G. L. Warner.

William Schavey & Sons, Grand Ledge, Mich., have purchased the Milliken Auto & Implement stock, which is located at Milliken, Mich., formerly owned by the F. J. Noble Implement Co. The stock and selling force and service will be increased and the agency for Ford has been secured. The service station formerly owned by Frank J. Noble has also been purchased.

Hall & Olcott, Perry, Mich., have dissolved partnership, Olcott retiring from the local firm and going with C. M. Groat to take charge of the Williamston Ford Garage and sales agency. Hall has taken Walter Hough as a partner in the local business, which will hereafter be known as Hall & Hough, and the Williamston firm will be in charge of Olcott & Groat.

Teutonia Motor Car Co., 1130 Teutonia Avenue, Milwaukee, Ford dealer, has changed its corporate style to Matthews-Neitzel & Co.

Auto Tire Repair & Supply Co., 1922 Sixteenth Street, Racine, Wis., has been purchased by J. H. Preuss, who will conduct it in association with M. R. Keeler.

Maso & Whitish, Fennimore, Wis., conducting a garage and repairshop, have dissolved partnership. Joseph Whitish has purchased the interest of A. J. Maso and will continue the business under the style of Auto Sales Garage.

Charles Byse, Red Granite, Wis., has sold his garage, repairshop and Reo dealership to A. M. Gogin, who has been operating a garage and has been Maxwell and Oakland dealer for several years. Mr. Gogin will operate both garages and act as dealer in the Reo, Maxwell and Oakland. It is understood that Mr. Byse has been appointed Ford dealer at Loyal, Wis.

New Garages

Kresler Auto Co.....Lowell, Mich.
Richards & Starking ($20,000).Lapeer, Mich.
Gillett's Vulcanizing Shop (50 x 100), Lapeer, Mich.
Continental Garage .....Milwaukee
Forest Leaf (64 x 126)....Oconomowoc, Wis.
Henry Behrens (48 x 98).....Peshtigo, Wis.
S. McHugh & Co. (40 x 75)....Norwalk, Wis
Boerner Auto Co. (addition), Cedarburg, Wis.
Frank Geier (60 x 106).....Sauk City, Wis.
Wausau Motor Car Co. (addition), Wausau, Wis.
White-McDonell Motor Co.....Ashland, Wis.
Davis Motor Car Co. (addition), Ashland, Wis.

NORTHWEST

F. A. Gagen and G. F. Gagen, Grinnell, Iowa, have sold the United Garage to C. H. Witte.

Joe Perry, Waucoma, Iowa, has bought an interest in the Slifka Bros. Garage.

August Kern, Riverside, Iowa, has purchased the interest of Ralph Kloepfer in the Kloepfer Bros. Garage.

Loetscher Bros. & Semmert, Dubuque, Iowa, have sold the United Garage to C. H. Witte.

Joe Perry, Waucoma, Iowa, has bought an interest in the Slifka Bros. Garage.

N. A. Ayer & Son Garage, Eddyville, Iowa, has completed the installation of equipment costing more than $1,000.

Ed. Hauptman and Emil McMorris, Arthur, Iowa, have bought the garage there.

John Kleinert, West Liberty, Iowa, has bought an interest in the W. T. Griggs Garage.

Malcolm Garage Co., Malcolm, Iowa, a mutual concern, has disposed of its business to three stockholders, W. W. Billick, Ames Smith and Robert Bennett.

W. W. Johnson, Marshalltown, Iowa, has bought the Emeny Auto Co.

George Rosman, Denison, Iowa, has sold his garage to Sam Hulsehus of Buck Grove, Iowa.

Gates Half-Sole Tire Co., Omaha, Neb., has opened salesrooms at 2522 Farnam Street. E. M. Shepard is manager.

Konzack Bros., Guide Rock, Neb., have rented another building adjoining their garage and are enlarging their quarters.

Crumblise-Van Doran Co., Omaha, Neb., has succeeded the Doty firm, dealers in the Velie and Monroe cars. J. S. Tucker remains in charge as sales manager and William Hal in charge of parts and serice.

New Garages

Ringsrud Motor Co.....LeMars, Iowa
Inwood Auto Co.....Inwood, Iowa
Volger-McBride Co.....Muscatine, Iowa
R. R. Miller.....Muscatine, Iowa
Standard Oil Co.....Clarinda, Iowa
Frank Edwards.....Dyersville, Iowa
George Thompson Co.....Corning, Iowa
Dubuque Tire & Supply Co...Dubuque, Iowa

PACIFIC COAST

Interstate Auto Co., Spokane, Wash., is now jointly owned by C. L. Christopherson and B. F. Adair. The firm handles the Velie line.

Sunset Motor Co., Seattle, Wash., has signed a $100,000 contract for the occupation of the new three-story garage building, which will house the Cadillac and Hupmobile lines.

Charles Maes and Albin Hanson, Mount Vernon, Wash., have leased the Pacific Garage on Second Street and will conduct a repair and service shop.

Battery Shop, Bellingham, Wash., has recently taken over the Mann Co.'s quarters. The company will handle Prest-O-Lite batteries.

Pacific Motors, Inc., Seattle, after an absence of considerable time, has returned to the retail field in Seattle. Grant A. Mark and R. B. Mark are at the head of the company, which handles Elgin Six and Harroun cars. L. R. Pittman will be sales manager of the retail department.

Paige Motor Co., E. Whitman, president, has erected a new building, 125 x 115, at the corner of Thirtieth Street and Broadway, Oakland, Cal.

Murray Mfg. Co. has purchased the Wiltsie Garage, San Leandro, Cal., and renamed it the Service Garage. The firm has the Chandler agency.

John Leppla & Son have opened Dodge and Hudson salesrooms at 1090 B Street. Haywood, Cal.

New Garages

Ed Lloyd and Jas Blair (75 x 115), Dillon, Mont
C. O. Radford (60 x 120), $15,000.....Seattle
Commercial Securities Co. (75 x 100)..Seattle
Anaconda Motor & Supply Co. (50 x 140), Anaconda, Mont

EAST

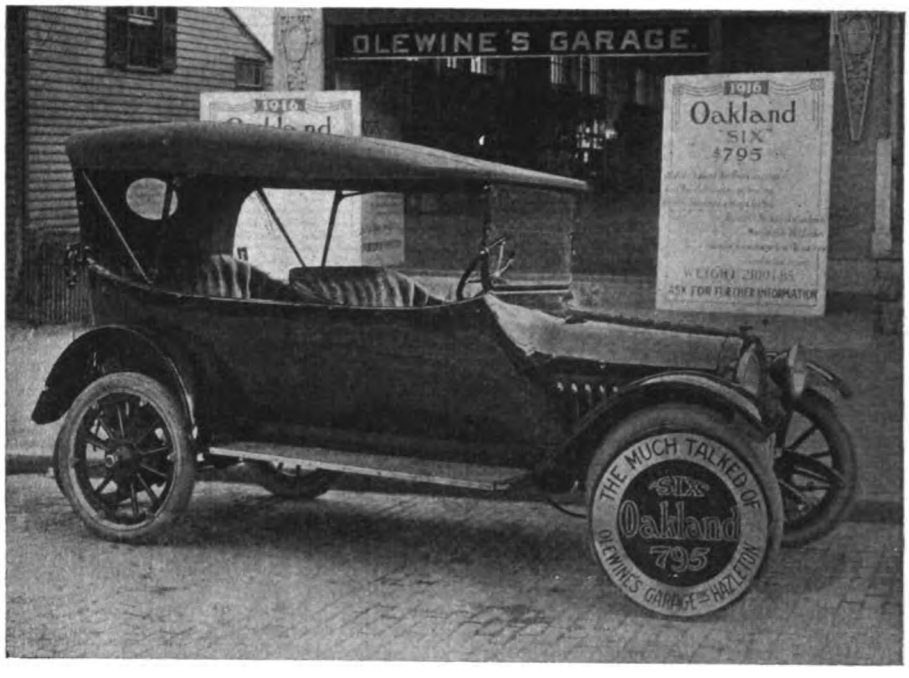
Fifth Avenue East Co., New York City, has leased the five-story garage building at 56 to 62 West 144th Street.

Upright Tire & Rubber Co., Buffalo, N. Y., has leased the building at 887-889 Main Street, which is a 40-ft. store, and will make extensive alterations.

SOUTH

Main Street Garage at Somerset, Ky., is to be enlarged and extensively remodeled and improved.

J. C. Wheeler, Anniston, Ala., has purchased a site, 120 x 140, on which he intends to erect a garage.



Here's the way Olewine advertises his garage—and also the Oakland car. The cardboard disk was lettered by a local sign writer.

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Get the Big Transportation Idea

Every dealer should investigate the possibilities in the motor truck and tractor field. Do it NOW

LAST week the eastern dealers in the Graham Bros. truck attachment held a convention at the Hotel Knickerbocker, New York. They came together for the purpose of learning more about the attachment and the company's plans and to get information as to the possibilities in truck selling.

The meeting was reassuring. It showed the possibilities that lie in selling trucks. It emphasized more than ever the necessity for each dealer's investigating NOW the question of truck sales. What many of the speakers said applies generally and to all dealers as well as to Graham dealers.

Would you believe that one buggy company could sell 70,000 buggies in 1917, and 30,000 gas engines? This is being done by W. H. McCurdy of Evansville, Ind., where the Graham attachment is made. He has studied business conditions. He said:

"What have we to contend with in the future? I am in touch with conditions all over the country. Business to-day is at a very high standard, a standard never surpassed. Every factory is busy. We have buggy orders on our books that we can't fill for four months, and they come from all sections.

"Business will be as good next year as it was this year. If you have any hesitancy about your business remove that hesitancy, for business is going to continue in large volume. The second bond issue has caused no stress in the money market. There is no shortage of credit.

"You ought to anticipate your needs. There is going to be a scarcity of freight cars. Winter will handicap freight. The demand will be one-third greater and the ability of the roads will be cut down one-third by the snow and cold and because of coal deliveries in the early winter. You should buy all the goods you can get between now and January 15.

"The world is not coming to an end, and after peace is declared there will not be any shrinkage of business."

One Bronx dealer said he had sold 24 trucks in 8 weeks and was finding it a very desirable business. He expects to sell more.

Need for selling efficiency was emphasized by M. P. Gould, who handles the company's advertising. He said the man who is using a horse is wasteful during these times, and should not be allowed to do it. Each man should extend his territory, and this he can do by means of the truck.

The company is making 150 a week and finds its business increasing. It is well located geographically, being near the Birmingham iron field, the Kentucky lumber business, is surrounded by coal and is centrally located geographically.

A particularly striking talk was given by W. O. Crabtree of the New York agency, who illustrated his remarks with large letter statements and statistics.

Troy Trailers for France

TROY, OHIO, Nov. 30—The Troy Wagon Works Co. is completing an order calling for 1250 five-ton trailers for the French Government. Each of the wheels of these trailers is equipped with brakes operated by a lever from the trailer itself. This company is also manufacturing trailers for the United States Government.

Newman Again Takes Chalmers

CHICAGO, Dec. 3—The Chalmers again is under the dealership of Harry Newman, in company with the Maxwell, the HAL and the King. The territory involved is the same as that for the Maxwell, Illinois, western Indiana, eastern Iowa and northern Missouri. All the cars will be carried by the agency, for the time being at least. Harry Newman is one of the most talked-of men in dealer circles here, and it was through his "recommending" Chalmers cars that he gained much of his prominence. Since then he has been the distributor of the HAL, and in June of this year formed an alliance with G. W. Stratton to handle the King, HAL and Maxwell. Stratton withdrew to concentrate on other interests, and Newman has continued with the business of the former merger.

Holt to Double Capacity

PEORIA, Dec. 3—The Holt Tractor Co. has commenced the erection of a building which will enable it to double its output of caterpillar tractors. The new structure will be ready for occupancy by Jan. 1.

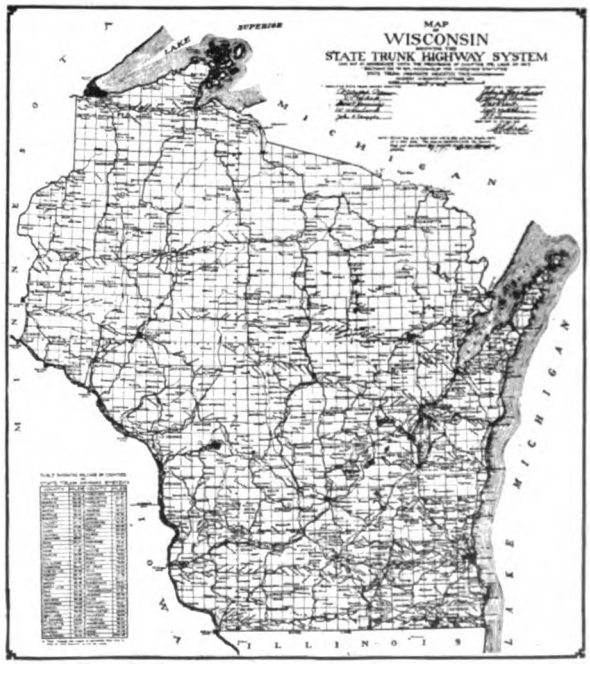
Milwaukee Going at It in a Big Way

MILWAUKEE, Dec. 3—The Milwaukee Automobile Dealers, Inc., plans a big "truck and transportation show" in connection with its regular show. The first seven days, Jan. 16-22, will be devoted to cars and the next three days, Jan. 23-25, to the truck and transportation exposition.

This exposition will occupy the entire Auditorium and 50 manufacturers will be represented. The exhibits will include trucks, bodies, attachments, hoists, tractors and trailers.

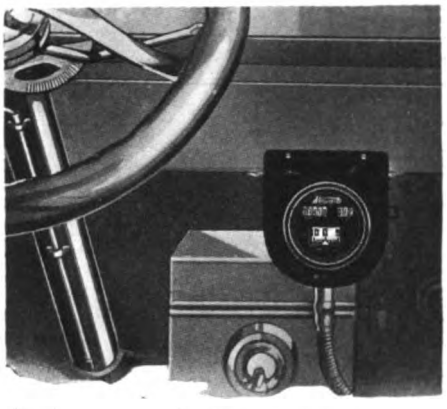
The show is but a small part of a big movement. The Milwaukee dealers plan a big educational campaign among business men for the promotion of truck and allied business. Jobbers and wholesalers of merchandise are to be sold on the idea of delivering goods over a considerable section of Wisconsin by motor truck. All business fields are to be invaded.

Wisconsin plans to spend $40,000,000 on good roads.



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Accessories

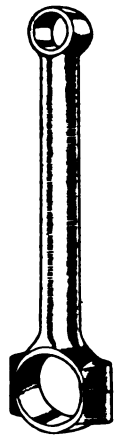


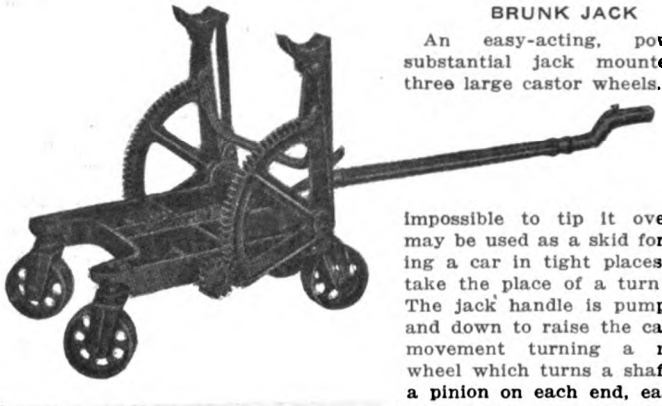
STEWART FOR CLOSED FORDS

This speedometer is especially for the Ford sedan and coupelet models. It is the standard model furnished with a special flange, since these cars do not carry an instrument board. It is attached by two nickel screws. It has a 60-mile rotating dial, 100,000-mile season register and a 100-mile trip register. The latter may be reset to any mile or tenth. Price $11.25 Eastern, $11.75 Western. — Stewart-Warner Speedometer Corp., Chicago.

ALUMINITE CONNECTING RODS

The weight of reciprocating parts on any car may be reduced by means of Aluminite piston and connecting rod assemblies. This metal has a high tensile strength, extreme light weight, and is very tough and non-crystallizing, it is said. The connecting rod assemblies are constructed with a tubular section, instead of the conventional H-section, thus obtaining great strength for the sectional area of the metal. An installation of this nature tends to increase the motor power by permitting a higher speed without vibration, and to decrease gasoline consumption.—Green Engineering Co., Dayton.





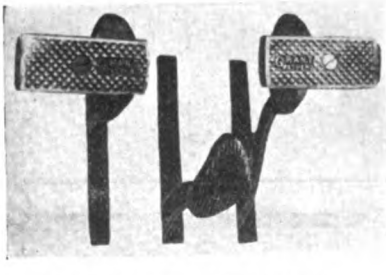
BRUNK JACK

An easy-acting, powerful, substantial jack mounted on three large castor wheels. It is impossible to tip it over. It may be used as a skid for moving a car in tight places or to take the place of a turn table. The jack handle is pumped up and down to raise the car, this movement turning a ratchet wheel which turns a shaft with a pinion on each end, each engaging its segment, which raises its respective lifting member. Lifting capacity 5000 lb., weight 100 lb.; price $30. Brunk Mfg. Co., Marion, Ind.

NOBLE SAFETY BRAKE FOR FORDS

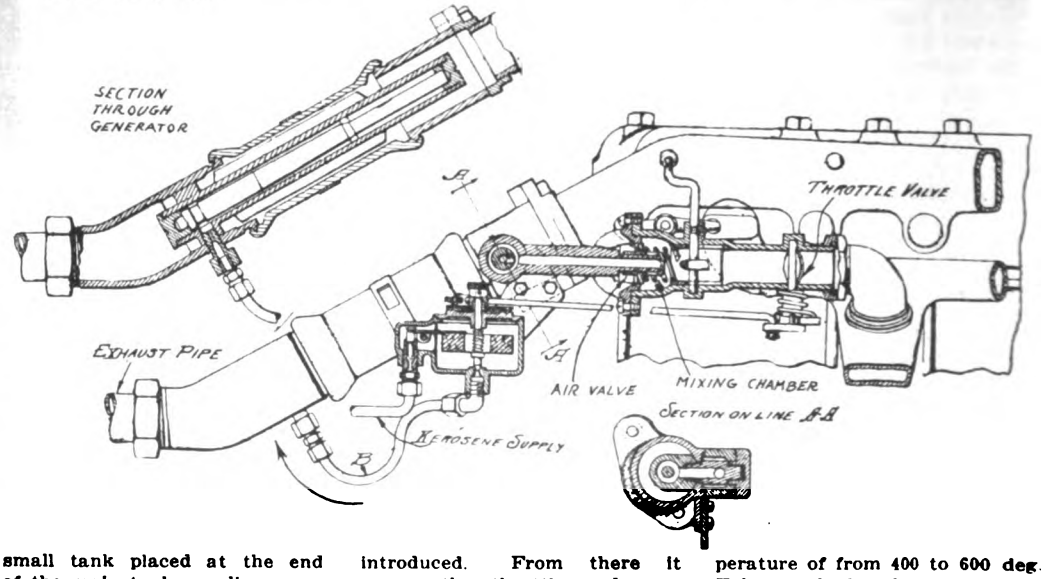
A simple device which applies the foot brake with the emergency brake, thus giving double braking power in emergency. Price $2.25. —Hughes Mfg. Co., 1806 South Michigan Ave., Chicago.





FORD PEDAL EXTENSION

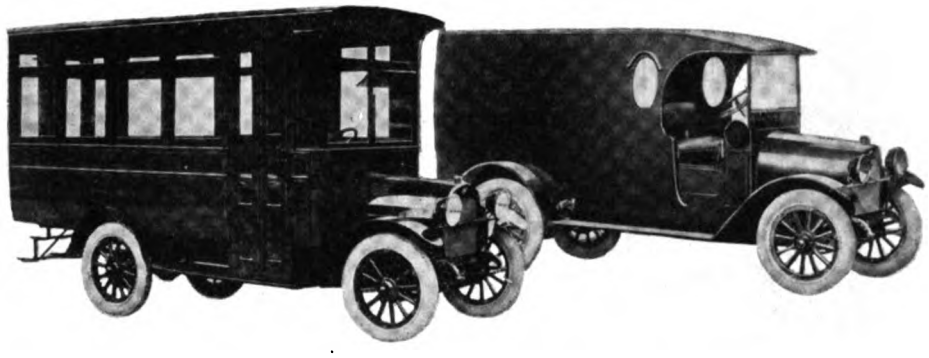
A pedal extension to give the feet wider and firmer holding surface on Ford brake and clutch pedals clamps over the regular pedal and fastens with bolt and lock nut. It can be attached in a few minutes and fits rigidly, prevents side slipping, gives the feet a natural position and makes the use of the brake and clutch easier. Made of aluminum, with roughened gripping surface or rubber top. Price per pair, $1 (metal) and $1.25 (rubber top). —Grant Auto Appliance Co., 819 Fourteenth Street, Denver.



WABASH KEROSENE CARBURETER FOR FORDS

A carbureter in which the kerosene is turned into a vapor which is mixed with air. The regular gasoline carbureter is used for starting. The main tank is used for kerosene and a small tank placed at the end of the main tank supplies gasoline. Kerosene flows into the float chamber and from there into a heating unit placed in the exhaust line, as indicated by the arrow. Here it is turned into a vapor and continues its passage to the mixing chamber, where air is introduced. From there it passes the throttle and goes to the engine. The heating unit in the exhaust pipe consists of a barrel-shaped member with radial pins running longitudinally. The kerosene is vaporized inside this barrel, being drawn out at the upper end, where it is said to have a temperature of from 400 to 600 deg. Fahr., and therefore is a gas. The air valve is controlled by a spring, and as it opens it regulates the supply of both air and gas. The spring tension is controlled from the dash to meet atmospheric conditions. Price $30, installed.—Wabash Kerosene Carbureter Co., Wabash, Ind.

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LANSING BODIES

A complete line of truck, ambulance, hearse, jitney and furniture bodies, designed particularly for mounting on Reo chassis, is being manufactured by the Lansing Body Co., Lansing, Mich. Those bodies are well-constructed, of pleasing appearance, and the result of careful study of the requirements that the body in each case must fill.

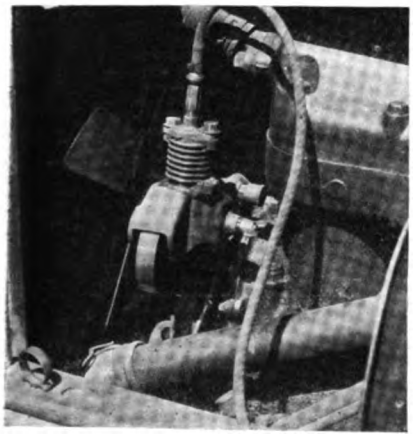
The ambulance body, style No. 143, is paneled inside and out, with vehisote panel, the inside being finished in grained mahogany, and fitted with a dome light, and drop glass window in the rear door. A cot is suspended from the roof on springs and two auxiliary seats are provided. If desired this body will also be fitted with a front door.

Two types of jitney bus bodies are manufactured, differing chiefly in the entrance door construction. The door on the No. 135 model is of the "folding-in" type, operated by the driver; that on the No. 147 being simply a single panel door. Both are of 14 to 16 passenger capacity, having lengthwise seats, fitted with dome light, buzzers and rear doors for exit.

The hearse body, No. 148, is 7½ ft. long, paneled both inside and out, with the interior finished in grain mahogany, stained, and polished. It is fitted with full hearse hardware, electric lights, and flower rack. The windshield and rain vizor are of the built-in type. The rear doors may be held open, or closed, by use of special stops.

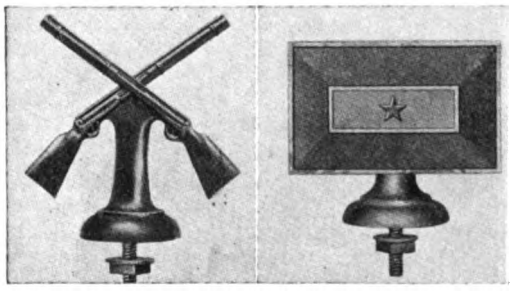
For light delivery purposes, two types of paneled bodies are made—the No. 150 and No. 112. Both bodies are 83½ in. long, 39¾ in. wide at the narrowest part, 54 in. high and paneled throughout in vehisote panel. The difference between the two is that Model 150 has oval doors in the body sides and rear doors.

The bodies of the furniture type—Nos. 126 and 137—are each 5 ft. wide and 10 ft. long, having 20 in. panels. The latter is equipped with a cab, the former having simply the usual folding top. In addition, two types of platform bodies, one the No. 140 and the other No. 117, are offered. No. 140 body is 5 ft. wide, 9 ft. long, and is supplied complete with cab, seat and racks, together with tailgate and tarpaulin. The platform on No. 117 body is 58½ in. wide and 10 ft. long, being supplied complete with all stakes, cab and seat.



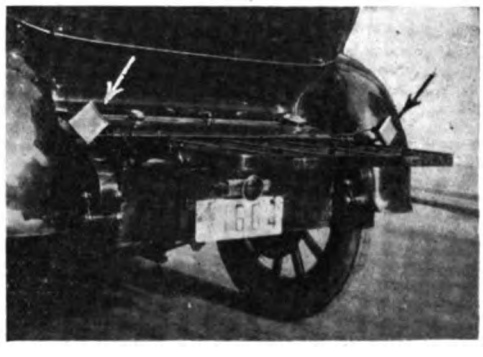
B-W PUMP

This is an engine-driven tire pump for Fords. It is attached to the front end of the Ford crankcase and is driven from the fan belt by a friction wheel. The pump itself is a single cylinder piston type pump. The piston has three rings. It is stated that the pump may be attached by anyone in a few minutes, the work requiring only an automobile wrench. A tire may be pumped to 60 lb. pressure in 3½ min., it is said. Price, $6.50, complete, with a 12-ft. hose and tire gage.—Bloom-Wallace Co., 509 Bowles Building, Detroit.



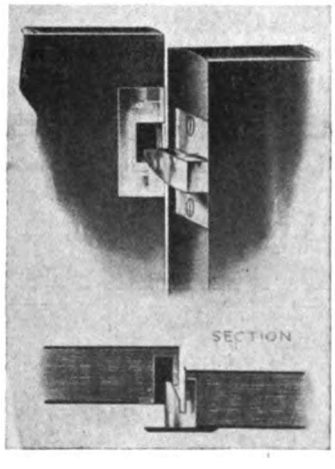
PATRIOTIC RADIATOR EMBLEMS

Military insignia emblems for mounting on the filler cap, finished in fine gold plate, heavy nickel or gun metal; price of each, $2.00. They include: Crossed rifles 4-in. high for infantry; crossed cannon 3¼ in. high for artillery; a castle representing the engineers' corps; medical and quartermaster's corps insignia and the letters U. S. R. for United States Reserve. The service emblem is enameled red, white and blue, with a frame heavily gold or nickel plated. Various attractive designs of American flags and shields are also made.—Art Metal Works, Newark, N. J.



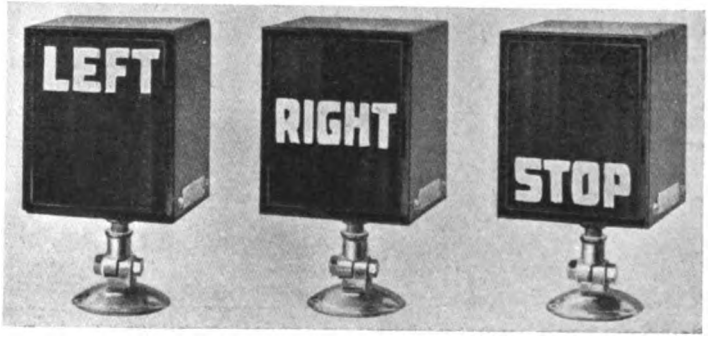
DIAMOND STOP AND TURNING SIGNAL

Two small diamond-shaped lenses are placed at the right and left side to the rear of the car in plain view of the driver following. The intention to stop is indicated by both lights lighting and the turn to the right or to the left by the right or left lamp lighting. All three signals are given by a single lever within easy reach of the driver. The signal is instinctively understood by a driver following. Price $16.—Diamond Signal Co., 715 Market Street, San Francisco, Cal.



SMITH AUTO SIGNAL

A single signal box, and not two, as stated in the Sept. 12 issue of Motor World, which may be mounted on either the front or rear fender, shows the words LEFT, RIGHT or STOP in red letters. It is said to be equally efficient day or night and is electrically lighted. Price is $17.50.—Smith Signal Corp., 55 West Sixty-sixth Street, New York, N. Y.



BENNETT HOLDERFAST DOOR ANTI-RATTLERS

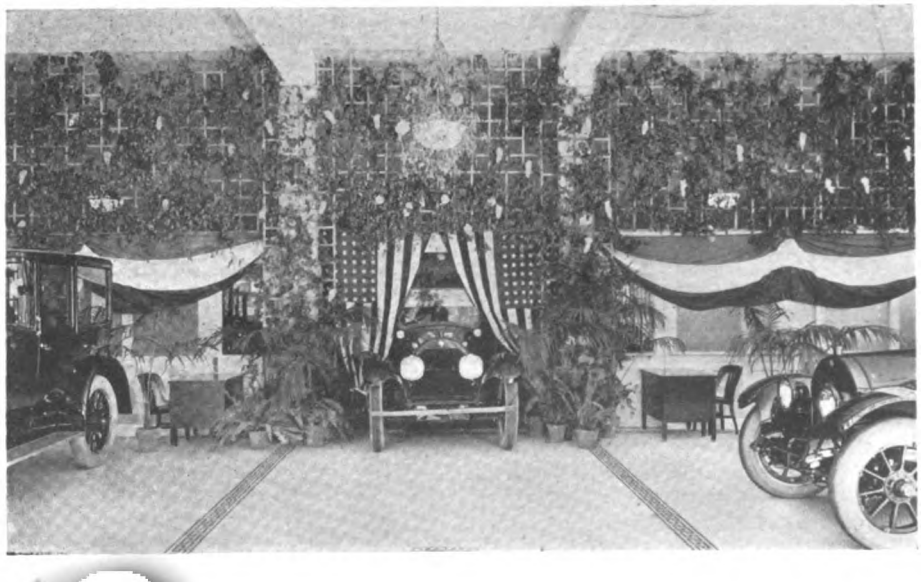
A simple device which may be applied to any car door to prevent rattling. It is so designed that it holds it tight in every direction. The construction is clearly shown.—Charles Bennett Co., Rocksboro, Pa.

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How One Dealer Staged an Enclosed Car Show







UNDISMAYED by the fact that the dealers of Omaha abandoned the idea of an annual closed car show because so few of them keep closed cars in stock, George F. Reim, president of the Cadillac Company of Omaha, staged an individual closed car show recently of which any house in the country might well be proud.

He engaged a professional decorator to fit up his already attractive salesrooms. From the top of the partition separating his offices from the salesrooms he ran trellises to the lofty ceiling. This he trimmed with real southern smilax, yellow and purple wistaria. About the rooms he set big potted Boston ferns and palms. His centerpiece was an immense pot of old-fashioned flowers. Other vases of flowers and ferns he set about the rooms, marking off cozy corners with standing lamps. He trimmed the chandeliers with smilax and wistaria. The tiled floors were laid with genuine French rugs. His display cars were chosen with fine care, and most effectively distributed. The whole scheme was finished off with flags and bunting.

Then he sent out 1500 engraved invitations, setting the date of the show during the annual Ak-Sar-Ben carnival, when all roads lead to Omaha.

His visitors came. Not so many as attended the show of last year, nor yet even as many as saw his individual show of two years ago. Reim is perfectly frank about that. But more came than might well have been expected. They came in gratifying numbers. And those who came will certainly come again, and bring others with them.

The results took care of themselves. Reim did a fourth of a year's business in three days.

Not alone in the show rooms and by daylight driving demonstrations did he conduct the show. He took his closed cars out by night. They were illuminated with neat signs on the runningboards and at the rear.

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The Week in Washington

Term "Non-Essential" Passes Into the Discard—No Drastic Curtailment of *Any* Industry Planned

WASHINGTON, D. C., Dec. 3—There will be no stigmatization of any industry in the United States under the classification of "non-essential."

There will be no drastic or specific curtailment of any industry in this country during the war.

There will be a safe, sane and steady course pursued by the Government which will insure immediate attention to the war needs, and also a constructive policy for all industry.

There will frequently be periods, sometimes for a day or week, other times for a month or three months, when certain industries, not so important to war as others, will suffer somewhat when an order demands freight car use for war transportation or a reduction of steel shipments to some plants in favor of others working on munitions, but none of these orders will be permanent and none will demand curtailment of a complete industry, and in all instances the industries suffering the temporary reduction of output because of emergency action will again, as soon as it is reasonable, be placed on a basis allowing normal conditions to resume.

What Government Officials Say

These are statements based upon the actions and remarks of Government officials for the past week, and it is safe to assume their accuracy. They represent the opinions of Daniel Willard, chairman of the War Industries Board; Walter S. Gifford, director of the Council of National Defense, and other officials of like importance, and they should be accepted generally and with complete disregard for the recent newspaper rumors which have been unofficial, injurious to the national interest and in many instances, as this column will show later, often the work of interests selfishly attempting to place in the Government's mouth their own personal aims and desires.

Gifford, expressing himself with regard to the curtailment of industries and their classification as "non-essential," stated:

(a) The fears of manufacturers are unnecessary and that severe and drastic action in the case of so-called non-essential industries is not to be taken, and that if even a temporary curtailment is contemplated it will be brought about gradually and without harm to employers or employees.

(b) The Government looks to the public itself to curtail the manufacture of luxuries by reducing consumption of such materials.

(c) Supplies and transportation facilities allotments will be diverted gradually and usually temporarily to those fields most effective to war.

(d) The Government will work to obtain a safe middle course between the fallacious "business as usual" basis and the complete revolution of industry.

(e) No list of non-essential industries has been made or is even contemplated, as this would mean injury to financial credit, employees out of work, bankruptcies, and that foreign countries with which the United States must do business might demand many of the articles classified here as non-essential.

(f) The Government plans through the new bureau of manufacturing resources to inform all manufacturers whose businesses are not necessarily war industries how they can secure some war work to do along with their usual business and also what to expect regarding temporary curtailment because of materials, labor or transportation.

(g) The Government is co-operating with the United States Chamber of Commerce to secure a safe, sane and efficient industrial policy.

(f) THE COUNCIL OF NATIONAL DEFENSE, FINDING IT DIFFICULT TO DEFINE ANY INDUSTRY AS NON-ESSENTIAL, HAS DECIDED THAT NO ATTEMPT WILL BE MADE TO DO SO.

Reasonable Course of Action

These statements, it will be quickly noted, tend directly toward a reasonable course of action. They show that the Government does not contemplate any such hysterical procedure as press reports would indicate. They prove that, following much of the natural confusion that resulted here from the speedy organization and operation of the nation's war facilities, matters will readjust themselves to a logical basis.

The chief cause for the hysteria that has existed has been irresponsible and mischievous press reports. Automobile manufacturers and dealers throughout the country and the general public have been led to believe that the nation's safety demanded drastic curtailment of the industry, that victory in the war depended on transportation embargoes for such things as motor cars, that the automobile industry had already been classified as non-essential. All such reports as these have in the main emanated either from irresponsible newspaper reporters or from private companies seeking to further their own selfish ends.

Recently a report was published in practically every newspaper in the country to the effect that the President had himself signed an order naming 400 non-essential industries which would be curtailed "within one week." It was said that the industries would be given very short notice, and that "the names of the industries were closely guarded."

This story actually originated with a Washington newspaper reporter who first thought up the idea, visited an official at the Council of National Defense and placed the words in the official's mouth. This man later repeated the idea to others, and within 10 hours it became a news item scattered far and wide. And this despite the fact that the President, having already delegated full priority orders to Judge Lovett, would never contemplate going over his head, while in addition there is actually no legislation or authority that permits direct discriminatory curtailment of industries, though this can be accomplished by indirect means.

Another example of the cause for the recent hysteria is displayed in a story recently published in New York City conveying supposed Washington news, though carrying a New York date line, and telling that the Government contemplated through Judge Lovett certain severe and drastic freight facilities curtailment for many industries, and naming the automobile industry in particular.

How Rumors Originate

This story was a scheme formulated by certain railroads for the purpose of placing their wishes into the mouths of the Government officials. As Judge Lovett's immediate denial proved, the scheme failed. The railroads in question had desired to place an embargo on certain articles, including automobiles. They took the matter up with their legal advisers and were informed that it would be illegal discrimination. Then by means of the publicity they attempted to bring about through Government action the embargo they themselves could not enforce.

These are representative examples of the publicity that has produced the frequent mention of "drastic curtailment" and "non-essential industries." There will no doubt be more such publicity, and it should be disregarded. Government officials know how to treat it. Daniel Willard, chairman of the War Industries Board, a thorough business man and intensely patriotic, is above all things desirous only to perform his duties most efficiently to accomplish his share of the work toward military victory and to do so in the most sane and reasonable way.

Other events here have temporarily slackened owing to the meeting of Congress, which opens this week, and which it is expected will have considerable influence on future movements.

The steel and iron manufacturers continue their demands here for Government orders on the plea that they are operating at less than normal capacity and that many of their plants will suffer disorganization of workers because of lack of work. In addition, many steel

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mills claim to be suffering a shortage of coal that is said to have cut production among certain mills to 50 per cent of normal.

The new War Council will hold meetings once each week, beginning to-day, and will attempt to co-ordinate all Government activities in the hope of eliminating conflicting and confusing orders.

Appointments of chairmen and members of various committees here still, in some instances, do not combine practical men with the positions. Last week an appointment was announced of an individual as chairman of a committee to investigate methods for transferring labor from one industry to another, who, though theoretically fit, has not enjoyed the practical experience that should justify his being placed in charge of work of such character.

There are many excellent, experienced men in this country who would be particularly fitted for such duties; men who know labor thoroughly, who have superintended thousands of workers, reduced labor turnover, intensified the workers' contentment, know all the little details that will enter into the vast problem of the transfer of workers. Such individuals would be more likely to be successful with this very important war problem than a man versed only in the theoretical viewpoint.

Visitors to Washington were few during the past week, and many Government officials took advantage of the holidays to leave the city for the week-end.

Keep Motor Car Industry Intact

Chalmers Hero of Manufacturers' Conference Which Pledges Support to Government Without Need for Disrupting the Industry

DETROIT, Nov. 30 — Hugh Chalmers, member of the Automobile Industries Committee, was the hero of the N. A. C. C. meeting, held at the Athletic Club here to-day when he declared that *he would not go back to Washington as a member of that committee with a resolution in his pocket that would allow the automobile industry, the third in the country, to be torn to pieces and legislated out of business.*

This action of Mr. Chalmers came when it was proposed that a resolution which amounted to turning over the entire industry to the disposition of the government was apparently under consideration and gaining favor from many present. As the meeting was not open to the press it is impossible to state exactly the conditions which existed when Mr. Chalmers rose to the occasion, made a historic hero of himself, and took a stand for the third industry in the country, which that industry greatly deserves.

Apparently the early stages of the meeting were not as enthusiastic as they should have been. There were 150 manufacturers of automobiles called together by the National Automobile Chamber of Commerce, and the members of the Automobile Industries Committee from Washington were present to review the Washington situation and to advise concerning the future of the industry.

The forenoon session broke up with matters in a very uncertain attitude. Several makers were uncertain as to whether they should be able to continue in business or not. The bigger men in the industry had not expressed themselves to any extent and there was noticeable gloom. For a time it looked as if manufacturers were going to leave the meeting literally whipped because they had not analyzed the situation as conditions demanded. There were many present who had not studied the subject. They had not read what had been published in their business papers. There were several who gave evidence of lacking backbone at a time when stamina was very much needed.

Hugh Chalmers took hold of the meeting at this particular crisis and through a whirlwind business-like talk turned a lukewarm meeting into an enthusiastic one.

"This is a time when there should be no pessimism. These are days when all industries must face problems, and when the heads of those industries must be prepared to honestly handle exigencies. The automobile industry is resourceful enough and its leaders are sufficiently capable to cope with any conditions that confront the industry."

In words to this effect Mr. Chalmers started his turning movement which resulted in completely changing the meeting.

As a result the manufacturers left in an optimistic frame of mind because Mr. Chalmers' speech had analyzed the situation for them. Many had this same viewpoint when they entered the meeting because they had carefully analyzed the situation during the formative stages of the so-called curtailment movement in Washington, but unfortunately there were many present who were not as familiar as they should have been with the situation as it existed.

Mr. Chalmers referred to the people throughout the country who are dependent on the industry and to the cardinal necessity of keeping intact the manufacturing organizations of a nation in war, because by so keeping the industries intact they are able to serve the government better. It is a part of national prosperity to keep the industries healthy.

In line with information furnished by Motor World in its recent issues, it was clearly shown by Messrs. Copland, Chalmers and Lee, of the Automobile Industries Committee, that the Washington authorities have no intention of arbitrarily cutting off the automobile business. There is no necessity for curtailment regulations from Washington. There is no necessity for so much talk of non-essentials. The industry has been automatically curtailed in response to the law of demand.

Before the meeting was over a unanimous vote was taken pledging the support of the automobile manufacturers to the War Industries Board, and to the War and Navy Departments, and the following telegram was sent to Daniel Willard, chairman of the War Industries Board, at Washington:

"The automobile industry as represented by more than 150 manufacturers in session here to-day volunteers its hearty support to our Automobile Industries Committee in Washington, and pledges to the War Industries Board and the War and Naval Departments their heartiest support, and to a man expressed their willingness to turn their facilities over to the Government as fast as the Government can make use of them. In the meantime we hope to keep our organizations intact so as to conserve the greatest possible potential strength to the present and future war plans of the Government."

Motor Reserve Commended by Baker

WASHINGTON, Dec. 3—A motor service reserve established in Minnesota has won the commendation of Secretary Baker. Through the Automobile Trade Association of Minneapolis several hundred motorists throughout the State have signed a pledge to volunteer their cars and drivers to any officers or Government officials in the neighborhood who require them for Government business.

Represents Willys-Overland In Capital

WASHINGTON, D. C., Nov. 28—E. C. Morso, formerly vice-president of the Chalmers Motor Co., has joined the Willys-Overland Co. and the subsidiary corporations as special representative in Washington. He has opened offices in the Munsey Building.

Automobile Committee Adds to Organization

WASHINGTON, D. C., Nov. 30—The Automobile Industries Committee has engaged W. D. Rockwell, sales director of the Universal Machine Co., Bowling Green, Ohio, as the manager of the com-

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mittee, and has placed in the organization as investigating engineers C. M. McFarland, of the Jackson Rim Co.; F. H. Kane, chief draftsman, Oakland Motor Car Co.; A. J. Platts, supervisor of tools, Maxwell Motor Co.; H. J. Woolson, engineer, Studebaker Corp.; Don Cole, chief engineer, Stromberg Carburetor Co. Other engineers who will investigate motor car plants for the committee will be appointed and announced later.

Government Trucks Taxable

WASHINGTON, Dec. 3—The Internal Revenue Department has ruled that cars and trucks sold to the Government come under the 3 per cent tax regulation.

Fords Higher in Cleveland

CLEVELAND, Nov. 30—Ford dealers in this city state that the price of Ford cars will be increased $5 about Jan. 1, the increase being necessitated by the freight situation.

Form Automobile Rifle Clubs

BOSTON, Dec. 1—Automobile rifle clubs that may be used in emergencies for defensive purposes are to be formed in Massachusetts and later on throughout the country, according to plans now being worked out by Alfred H. Sowers, of the Bay State A. A., who is treasurer of the Jackson Motor Car Co. of New England. The plan is to have the automobile, accessory and tire companies form a motor rifle organization among their members, and have them buy their equipment and agree to go to some range at least once a week for practice. The dealers can supply the cars for the members, and it will be possible to secure some army official to instruct the men in their practice.

Charles City to Organize

CHARLES CITY, IA., Dec. 3—The dealers in Floyd-Mitchell County are planning an association. One of the most important things they will take up is credit. A questionnaire has been sent out to all dealers asking them how much credit they have given, how much still stands on the books, how much is in the dead beat class, etc. Other trade benefits are under consideration.

Roads for Heavy Trucking

BOSTON, MASS., Dec. 1—The Massachusetts Highway Commission has decided that it will not build any roads next year that would merely connect up summer resorts or along scenic routes. Instead the money will be spent upon widening and strengthening the highways between the various cities, and along which military bodies would be moved in case of emergencies. The commission will not let the scenic routes deteriorate, however, for it realizes that they are a distinct advantage to the State in attracting visitors, and in taking a lot of traffic off some of the main highways.

Marshall Made Head of Labor Problem Body

Committee Will Investigate Present and Future Demands of War Industries

WASHINGTON, D. C., Dec. 1—L. C. Marshall, dean of the school of commerce and administration of the University of Chicago, has been named as chief of a newly created committee of the Council of National Defense to handle preliminary investigation in the many existing labor problems.

The committee will have four main objects:

1—Determination of present and future labor demands of war industries.

2—Determination in connection with priorities committee of the relative priorities of labor demand.

3—Arrangement through Department of Labor for supply of demand for labor or through such governmental or civilian agencies as can best meet the demand.

4—Determination of the necessary dilution of labor including the introduction of women into industry.

Following investigation by this committee, which will be completely named in the near future, the council will look to representatives of the workers to supply the available men.

The committee will have no executive powers, but will merely gather data for the council. Conscription of labor is to be avoided both in thought and action and employment agencies will be utilized as the only medium other than co-operation from the workers themselves to supply the demand for labor.

Up to this time the only serious shortage for labor has been found in shipyards and railroads, and all other munitions plants or war industries have found an ample supply of workers to meet their requirements.

Henshaw Celebrates Third Anniversary

BOSTON, Dec. 3—The C. S. Henshaw Co., Dodge dealer in eastern Massachusetts, celebrated its third anniversary with a banquet here to-night, at which prizes were awarded to the winners of the salesmanship contest begun some time ago. Diamond-studded medals showing a Dodge Brothers radiator, gold trophies and cash bonuses were awarded. Walter L. Shepard won first prize in the new car division. He sold more than 100 cars. No trades were made. A. S. Wright won second prize. J. W. Weeder won the used-car prize, with J. S. Murray second. Weeder won the same event last year. The winner of the branch salesmen's contest was C. F. Muzzey, with C. F. Batchelder second.

To Study South American Markets

NEW YORK CITY, Dec. 3—El Automovil Americano, the Spanish export publication of the Class Journal Co., which publishes Automotive Industries, Motor World and Motor Age, is sending Rodolfo Ried to visit practically all Latin-American countries for the purpose of reporting directly on motor car conditions in these countries. The reports will refer particularly to existing market conditions in these countries and the demand for motor cars, motor trucks, farm tractors, motorcycles and other automotive apparatus. Mr. Ried leaves the end of this month, and his itinerary will include such cities as Habana and San Juan in the West Indies, and the following in South America: Barranquilla, LaGuaira, Pernambuco, Bahia, Rio de Janeiro, Santos, Sao Paulo, Rio Grande do Sul, Puerto Alegre, Montevideo, Asuncion, Buenos Aires, Bahia Blanca, Rosario, Tucuman, Punta Arenas, Valdivia, Concepcion, Santiago, Valparaiso, Antofagasta, Oruro, La Paz, Cuzco, Callao, Lima, Guayaquil, Buenaventura, Panama, Bogota, Caracas. In addition the capitals and leading ports, and principal cities of Central American countries and Mexico will be included.

Society of Automotive Engineers—Publicity

NEW YORK, Dec. 4—The engineering reasons back of the standardized U. S. war trucks will constitute an interesting part of the S. A. E. program to be held during the afternoon of Thursday, Jan. 10, at the mid-winter meeting of the society. The sale of tickets for the Automotive Industries dinner to be held at the Hotel Biltmore Thursday evening, Jan. 10, is progressing rapidly. Checks have been received for 304 tickets. The sale of tickets for the war dinner at the New Morrison Hotel, Chicago, on Friday, Feb. 1, is also progressing rapidly, 244 tickets having already been sold. The Mid-West Section, located in Chicago, is going to sell 300 tickets in the city. The complete tractor program for the afternoon engineering session on Friday, Feb. 1, at the Hotel Sherman, Chicago, is nearly ready for announcement. It is one of the most complete programs dealing with tractor design that has so far been attempted. The fundamentals of tractor engine design; the fundamentals of tractor transmission systems, and the fundamentals of general tractor design will be discussed. Three of the best known tractor engineers have practically agreed to handle these subjects. One of the best known gasoline chemists in America has under consideration the presentation of a special paper on tractor fuels, embracing the all-important subject of what tractor engineers will have to keep in mind in designing to meet the fuel requirements of the future.

Mechanics Leaving Detroit

DETROIT, Dec. 1—Over 136 recruits for the mechanical repair unit have left this city in the past two days for eastern points and immediate transportation to France. Many of these are mechanics from the automobile plants, and others were from industrial plants. The slogan for enlistment was "Thanksgiving at home, Christmas in France."

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How St. Joseph Started Something

in West-of-Mississippi Selling

First Closed Car Show an Unqualified Success

ST. JOSEPH, Dec. 3—St. Joseph has "started something" in west-of-the-Mississippi selling. It held the first closed car show in this territory—but it will not be the last. Many other towns have seen what St. Joe did; and they are going to do likewise.

St. Joseph is a city of 125,000. It has been a leading wholesale market for dry goods, shoes, hardware, for two generations—and is holding its trade; salesmen for houses here travel to the Pacific Coast and the Gulf of Mexico. It is an important livestock market, with several packing houses. The jobbers and manufacturers of St. Joseph have for years maintained a bureau giving service to retailers, and have brought about real co-operation.

St. Joseph's biggest work, perhaps, has been on good roads. All the business men of the city give their time and money to the promotion of roads, with the result that St. Joseph is on many of the cross-State and transcontinental highways—and Buchanan County has a larger proportion of improved highways than any other county in the State. There is not a steep grade in the county.

There are a lot of closed Fords through the district. And M. R. Lawlor, now one of the Ford dealers in St. Joseph, was responsible for many of those sales. While traveling for the company, a few years ago, he habitually used a sedan. His practice was to leave the car in the middle of the street of a small town, and go about his business. Keeping his weather eye on the crowd that gathered about the car, he waited until the idly curious had left and only the tolerably sure prospects for sales remained. Then he went up and talked sale, the local dealer going along if there was one in the town. In this way the seeds of closed car popularity were planted in many towns of the territory west of the Mississippi.

Following are the eleven St. Joseph dealers who exhibited at the Closed Car Show of Nov. 9-10, 1917: Paul H. Polk—Cole, Chandler; W. H. Robinson—Cadillac; Farmer Auto Co.—Dodge; R. S. Trachsel Motor Car Co.—Overland, Willys; Grant Motor Co.—Ford; Lawler Motor Co.—Ford; French Motor Co.—Chalmers, Nash; Diamond Motor Co.—Hudson; Armstrong Auto Co.—Kissel; Wolfley Auto Co.—Mitchell; Rullman Auto Co.—Oakland.

The St. Joseph show was conducted by committees, and without a regular "manager." One committee laid out the floor and sold the spaces; another attended to the advertising; another to the entertainment and decorations. F. E. French, secretary of the show association, and president of the dealers' association, collected the loose ends of detail.

With this sort of a spirit of co-operation among the business men of St. Joseph it could be expected that the automobile dealers were working together. And they are. There is an active local association of motor car dealers. And there is an incorporated St. Joseph Automobile Show Association, which includes most of the members of the dealers' body. The president of the show association is R. R. Calkins, vice-president of the German-American Bank of St. Joseph; vice-president, S. R. Farmer of the Farmer Auto Co.; secretary, F. E. French of the French Auto Co.

The show association held its first exhibition in March of 1914; omitted 1915 (a negligence that has been ever after regretted); held spring shows in 1916 and 1917.

And this fall the show association pulled off a closed car show, Nov. 9 and 10.

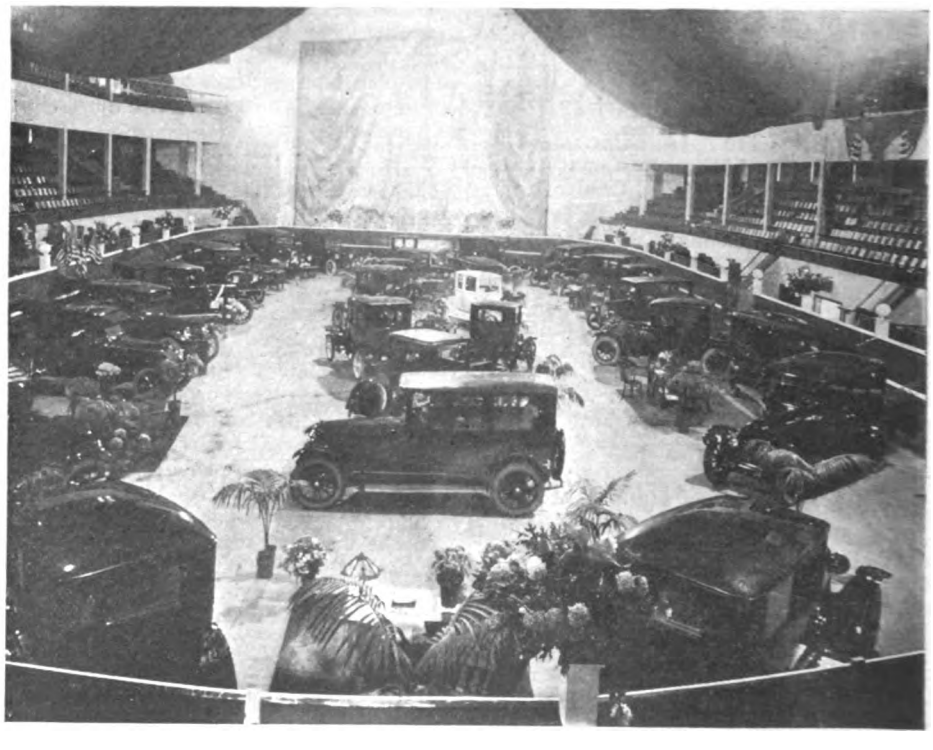
The arrangements were made in short time. A few who wanted to hold a show got little encouragement at first. Then suddenly "everybody" decided that it was the thing to do. The date was set—and all the work of raising the money, arranging and placing the advertising, and building the show was done in less than two weeks. A fund of $2,000 was decided upon, and was divided among and paid in by the 11 dealers who decided to participate. A few didn't think it worth while; some couldn't get closed cars to show.

The exhibition was staged in St. Joseph's Auditorium, a "town hall" where conventions, balls, and big events, including the spring automobile show, are held. A few hundred dollars was spent in newspaper advertising, in the St. Joseph papers which circulate through the sales territory of the St. Joseph dealers. The dealers sent personal letters to their sub-agents in the territory, urging them to come to the show, and bring some of their prospects for closed car sales, or persons who were thinking of buying any model of car. Personal letters were also sent to many of the prospects of the dealers themselves, in St. Joseph and the surrounding country.

The show opened at noon Friday, Nov. 9; during the afternoon and evening perhaps 400 visitors came. Saturday there were perhaps 1000 all told who visited the show, through the drizzle of the afternoon and the rain at night.

The 27 cars on exhibition just comfortably fitted into the floor space, giving plenty of room for visitors to walk around and examine each car. There were a few tables, one for each exhibitor, on which was literature about the car shown; a few wicker chairs; floral decorations; an orchestra, and some vocal musical numbers. At no time was the attendance sufficient to crowd the floor; none of the auditorium seats were occupied.

Successful? The closed car show was the biggest thing ever pulled off in St. Joseph. There wasn't a minute that every visitor wasn't asking about one of the cars, examining one, or listening to talk about one. The only people who sat in the chairs were women who wanted



St. Joseph dealers believed that a closed car show would pay. So they put one on, and this is what it looked like. Did it pay? Just read the story

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to go into detail about a car with a salesman; and there were usually two or more persons sitting in several of the cars, examining them closely.

"I like a closed car show," said one dealer, elated with the appearance of the "crowd" of some 150 persons then in the hall. "Everybody who comes in here is a pretty sure prospect. Over there is a man with his wife and daughter—and the daughter of a neighbor—chance to sell two, maybe three, cars. There's a farmer from 50 miles, a hardware dealer who came 60 miles, a banker who came 40 miles—each is pretty sure to buy a closed car, even if he has one already."

It was a "selling show" right from the jump. Friday afternoon, two hours after the show started, the rumor got out that a car had been sold to a show visitor. It was confirmed. The sale was not of a closed car, however, but of a touring car, at the dealer's place of business, to a man who had come in to the show. By evening of the first day this same dealer had closed two sales, both to prospects previously worked on. During the two days it is said that about 10 cars had actually been sold; and the show had been the means of practically clinching from two to a dozen sure prospects for each dealer.

St. Joseph is considered by the dealers an exceptionally good field for the sale of closed cars. And they are of the opinion that their whole territory is good, for that matter. They go farther—they say that every territory should have a large sale of closed jobs this winter, and far larger next year. Buchanan County is the fourth county in the State in number of cars owned—following close after Jasper County, which has Joplin and Carthage and the mining district, with the counties that have St. Louis and Kansas City of course far in the lead. In St. Joseph there are perhaps 150 closed cars already—perhaps 5 per cent of the cars owned. St. Joseph is, too, a city where many people own, and many more would buy, two or three cars; there is a large number of wealthy people.

But the closed car business is not confined to the city. In very many of the smaller towns of the district there are two or more closed cars. Bankers, real estate and loan men, merchants, retired farmers, professional men, in the smallest towns have closed cars—in towns as small as 300 population. The farmers are buying them, too. One dealer said his best prospects for closed cars were farmers; and all the dealers are carefully cultivating the farmer's automobile business, with a view to selling closed jobs.

To Keep Roads Clear

WASHINGTON, D. C., Dec. 3—In co-operation with the Highways Transport Committee, the Pennsylvania State highways authorities have decided to keep the roads of the State open all winter. Six large motor snowplows have been placed in service and sent to district points along the main east and west roads of the Lincoln Highway to keep it open for the drive-away of the war trucks which begins early next year.

More Exhibitors for the National Shows

Another Car Maker and Many Additional Accessory Makers Newly Allotted Space

NEW YORK, Dec. 4—One more car exhibitor has been added to the list for both the New York and Chicago shows. This is the Templar Motor Corp., Cleveland, Ohio. The following accessory exhibitors have been added to the list:

New York and Chicago

Pratt Mfg. Co., W. E.	Chicago
Sunderman Corp.	Newburgh, N. Y.
Water Gas Carburetter Co.	New York
Wire Wheel Corp. of America	Buffalo
Guarantee Liquid Measure Co.	Pittsburgh
Macbeth-Evans Glass Co.	Pittsburgh
Menominee Electric Products, Inc.	New York
Arrow-Grip Mfg. Co.	Glens Falls, N. Y.
Black & Decker Mfg. Co.	Baltimore
Challoner Co.	Oshkosh

New York Only

Eisemann Magneto Co.	Brooklyn, N. Y.
Fryer-Auster Co.	New York
Kales Stamping Co.	Detroit
Le Compte Co., Geo. W.	New York
Otis Elevator Co.	New York
Peters & Herron Dash Co.	Columbus
Philadelphia Storage Battery Co.	Philadelphia
Rives Never-Slip Auto Pedal Co.	New York
Simmons Mfg. Co.	Cleveland
Sales Service Co.	New York
Titeflex Metal Hose Corp.	New York
Tri-Ton Trailer Corp.	New York
Union Truck Mfg. Co., Inc.	New York
Adams & Elting Co.	Chicago
Art Metal Works	Newark, N. J.
Auto Pedal Pump Sales Corp.	New York
Edward G. Budd Mfg. Co.	Philadelphia
Carburetor Mantle Co.	New York
Coffield Tire Protector Co.	New York

Chicago Only

Air Device Co.	Chicago
Gibralta Jack Co.	New York
Globe Mfg. Co.	Battle Creek
McKinnon Dash Co.	Buffalo
Syracuse Universal Mfg. Co., Inc.	Syracuse

Truck Pathfinder Reaches Washington

WASHINGTON, D. C., Dec. 3—H. C. Osterman, driving the pathfinder car for the Highway Transport Committee, arrived here last night, following a 10-day journey during which the party tested every road and route of consequence between Detroit and the eastern seaboard from which the war trucks will be shipped to Europe. The entire journey as finally laid out will make a trip for the trucks of 565 miles. The pathfinder party brought to Washington a complete set of maps showing in detail every camp site, bend and turn and the mileage. About 90 per cent of the roads were found in good condition.

Marathon Business Way Ahead

CUYAHOGA FALLS, OHIO, Dec. 3—The Marathon Tire & Rubber Co. reports that it is at present considerably behind in filling orders, particularly for the popular sizes of tires. For the months of September, October and November gross sales exceed the same period last year by 60 per cent, and spring delivery orders are approximately 80 per cent ahead of last year. Collections are good and have been assisted materially by the Trade Acceptance plan.

Peoria Tractor Reorganized

PEORIA, Dec. 3—The Peoria Tractor Co. has been reorganized and the capital stock increased to $1,500,000. The plant at East Peoria will be enlarged in order to permit the construction of 2000 vehicles a year. An order for 300 tractors has just been secured from the British government.

Hudson Prices Revised

DETROIT, Dec. 3—The prices of the Hudson Super-Six models, manufactured by the Hudson Motor Car Co., are revised as follows:

Model	Old Price	New Price
7-pass. Phaeton	$1650	$1950
4-pass. Phaeton (formerly Speedster)	1750	2050
Runabout Landau	New model	2350
Four Door Sedan	New model	2750
Touring Limousine	New model	3150
Limousine	2925	3400
Limousine Landaulet	3025	3500
Town Car	2925	3400
Town Car Landaulet	3025	3500
Full Folding Landaulet	New model	4252

1000 Minnesota Motor Reservists

MINNEAPOLIS, Dec. 3—The Minnesota Motor Reserve has sent to the Secretary of War a list of 1000 Minnesota car owners, located in 90 different towns, who have volunteered the use of their cars in military emergencies. The cars will be used if needed to transport troops or to carry government representatives. It is believed the list when completed will include 4000 or 5000 car owners.

Mason Tire Earns $181,504

KENT, O., Dec. 3—The annual report of the Mason Tire & Rubber Co. for the year ending Oct. 31 shows gross sales exceeding $1,200,000 and total profits of $181,504. Deductions for income tax reserve, preferred dividends and preferred dividend reserve leaves a surplus balance of $104,330. This is practically 20 per cent on the common stock. The preferred stock has been increased in par value from $10 to $100. The following directors were elected: O. M. Mason, D. M. Mason, D. N. Mason, John H. Diehl and R. W. MacKinnon, and the following officers were re-elected: President, O. M. Mason; treasurer and general manager, D. M. Mason; secretary, R. W. MacKinnon.

Grant Prices Revised

CLEVELAND, Dec. 3—New prices of the 1918 Model G cars manufactured by the Grant Motor Car Corp. are as follows:

Style	New Price	Old Price
Touring car	$1,055	$875
Roadster	1,055	875
Detachable Sedan touring car	1,350	....
All weather Sedan touring car	1,595	....
All weather Sedan coupe	1,575	....

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Trade More Cheerful; Business Picking Up

Detroit Dealers Happier Following Increase in New Car Sales—Used Trade Slow

DETROIT, Dec. 1—Dealers are in a much more cheerful frame of mind at present than they have been for some time past, and this to a certain extent is a reflection from the increasing confidence of the manufacturer. But more directly is it due to the fact that the retail business is picking up slightly. The used-car business is, however, still quiet, and several dealers are holding used-car sales in the effort to keep them moving.

The Simons Sales Co., Overland distributer, is one of the dealers that has shown a continued confidence in business, and has displayed that confidence by stocking up with cars when others were deciding whether to take a chance or not. In every way possible this company has strengthened its business, and is breaking all records for previous sales. At present 23 salesmen are employed. In March, 1917, the retail sales for Detroit were $87,000. Though the reports for the last few days of November are not in, the retail sales for that month already total over $82,000, and are expected to beat the March record. And the sales for November, 1916, were only $24,000. This is an example of what intensive work will do.

The L. J. Robinson Co., Chalmers and Maxwell distributer, reports a good business, particularly in closed cars, and is optimistic as to the coming weeks. All of which is the general attitude of the dealers.

Hearne Wins on the Coast

LOS ANGELES, Dec. 3—Four local track records were broken in the final motor car races of the year at Asquith Park, Miles Speedway, Thanksgiving. Eddie Hearne won the 50-mile in a field of six starters in 41:54 4/5; average, 71.5 m.p.h. Louis Chevrolet, with a handicap of 856 feet, won the 10-mile in 7:51, average 75.5 m.p.h. Other handicaps were: Durant, 1,800 feet; Milton, 428; Hearne, scratch. Hearne beat Milton by a car length. Tom Milton won the one-mile special with a flying start in 47 seconds, and averaged 76.6 m.p.h. Durant and Chevrolet finished. Oldfield, in a special car, made a circuit of the track in 45 seconds, an average of 80 m.p.h., breaking his own record by one-fifth of a second. Patterson, Pullen, Vail and Bolden, announced as entries, failed to show up.

Dismantle Des Moines Speedway

DES MOINES, Dec. 3—The Des Moines Speedway is being dismantled. It was built about 5 years ago, and two big races and a number of lesser meets were held there.

License All Used Car Dealers in Detroit

Both Car and Accessory Dealers Must Have Bond of $2,000—Law Aimed at Theft

DETROIT, Dec. 1—In the future all used-car and accessory dealers must procure a license from the mayor and go on a bond for $2,000 before being permitted to do business. This ordinance has been passed by the city council and goes into immediate effect. Car theft, tire and accessory theft have been constantly increasing in the past, and the effect of the ordinance will be to render a strict accounting of all used cars and merchandise possible by the police department. It is a part of the ordinance that the dealer's establishment must be in the city, and that the dealer be a man of good character, to obtain a license.

War Helps the Sedan

NEW YORK, Dec. 3—War conditions have made the sedan a more popular selling car than the limousine, according to statements from New York dealers. Sedans are in demand, but it is not so easy to get rid of limousines. Many owners have disposed of their chauffeurs as economy measures and are driving their own cars. Some of the dealers have quite lengthy lists of chauffeurs who desire employment.



Here is a view of the Toledo Automobile Dealers' Association's show, which was held recently and which proved quite as successful as its sponsors expected

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Show Space in Boston Allotted by M.A.M.A.

Twenty-nine Manufacturers Have Signed Up for New England Show—More to Be Added

NEW YORK, Dec. 2—The following members of the Motor and Accessory Assn. have taken space at the Boston show, which will be held March 2 to 9 at the Mechanics Building under the auspices of the Boston Automobile Dealers' Assn.:

Auto Pedal Pump Sales Corp., 456 Fourth Ave., New York
Brunner Mfg. Co.....Utica
Champion Ignition Co.....Flint
Corcoran-Victor Co.....Cincinnati
Corning Glass Works.....Corning, N. Y.
Detroit Pressed Steel Co.....Detroit
Dixon Crucible Co., Jos.....Jersey City
Doehler Die-Casting Co....Brooklyn, N. Y.
Du Bois Piston Ring Co., Inc.....Albany
Electric Storage Battery Co....Philadelphia
Gray & Davis, Inc.....Boston
L. P. Halladay Co.....Streator, Ill.
Harris Oil Co., A. W.....Providence
Hartford, Inc., Edward V.....Jersey City
Kellogg Mfg. Co.....Rochester
Kent Mfg. Works, Atwater.....Philadelphia
Mann Co., F. W.....Milford, Mass.
Metal Stamping Co.....Long Island City
Mosler & Co., A. R.....Mt. Vernon, N. Y.
Moto-Meter Co., Inc.....Long Island City
Piel Co., The G.....Long Island City
Rowe Calk Co.....Hartford
Century-Plainfield Tire Co.....Plainfield
Schrader's Son, Inc.....Brooklyn, N. Y.
Syracuse Malleable Iron Works....Syracuse
Vacuum Oil Co.....New York
Veeder Mfg. Co.....Hartford
West Side Foundry Co.....Troy
Rand Mfg. Co., Inc.....Haverhill, Mass.
Warner Lens Co.....Chicago

Two New Fuller Gearsets

KALAMAZOO, MICH., Dec. 3—Fuller & Sons Mfg. Co. is bringing out a new four-speed and reverse sliding gear gearset with direct drive on fourth. It is to be built in two styles, one a standard unit power plant complete with dry-plate clutch and controls. This type is known as model GU. The other model, G, is practically the same except that it is for amidship mounting and does not contain the clutch and control. The new unit is designed primarily for motor trucks of 2 to 3 tons capacity, but is also suitable for large passenger cars.

Will Sell Soldiers' Cars

WINNIPEG, Dec. 3—The Multi-Power Motor Sales will sell motor cars belonging to those who are drafted without any charge for commission. This is done solely in a spirit of patriotism and helpfulness to those who will soon leave for the front and who have a car which will be practically useless to them while they are in service.

Wisconsin Tractor Getting Ready

SAUK CITY, WIS., Dec. 3—The Wisconsin Tractor Co., Sauk City, Wis., established about a year ago by McFarland & Westmont, Lodi, Wis., in the plant erected at Sauk City for the use of the Shaw Motor Co., but never occupied, has incorporated its business with a capital stock of $100,000 under the name of Wisconsin Farm Tractor Co. Local interests who bought stock in the Shaw company to construct the plant are receiving shares in the Wisconsin company, which thus becomes possessor of the real estate and buildings. The output of all-steel tractors for farm and general haulage purposes is being greatly enlarged.

Canadian Dealers Close Sunday

WINNIPEG, Dec. 3—At a meeting of the dealers' section of the Winnipeg Motor Trades' Association it was decided to close dealers' garages for the sale of gasoline, oil, supplies, service or repair work at 7 p.m. on each week day and altogether on Sundays and holidays. This step was taken by the dealers as they were of the opinion that the sales end of the business was distinctly separate from garage work, and they wished to get away altogether from the garage business and leave it to the gasoline filling stations and ordinary garages where no cars were sold to deal with the supply and repair end of the work. Notices to this effect have been placed in all the dealers' showrooms and garages.

Harper Buys Overland Philadelphia Branch

Former Vice-President and General Sales Manager of Willys-Overland Becomes a Dealer

TOLEDO, Dec. 3—H. B. Harper has resigned as general sales manager of Willys-Overland and has purchased the Philadelphia branch of the company, which in the future will be styled H. B. Harper, Inc. This branch is located in a territory of more than 5,000,000 inhabitants, and the contract made by Mr. Harper for the next year is said to call for $5,000,000 worth of cars, or at the rate of $1 per capita in his territory. In the past Harper has been associated with the Bowser Oil Tank Co., Ft. Wayne, Ind.; the Ford Motor Co., and later with the Gibson Co., Overland distributers, Indianapolis, before joining the Willys-Overland Co. at Toledo.

Below is shown a card which the Chevrolet company is sending broadcast to bring about a better realization of the essential character of the motor car

Exit Pleasure Car; Enter Quick Transportation

STOP it now! Stop saying "pleasure" car! The word is out of place in war time. But it was always out of place.

Study conditions as they are to-day, not as they were last year. The selling atmosphere is different.

Talk and sell quick transportation.

The demand for automobiles has increased, but the reasons for buying are not the same.

There are new appeals. The selling angle has changed from the frivolous to the serious. Talk the language of the day.

Sell transportation as it applies to present needs. Point out reasons for buying now.

The pulse of the Nation has quickened. Rapid and economical transportation is needed to keep pace with that quickened pulse, and the automobile is a necessity everywhere.

Let your selling talk be pertinent to present-day requirements.

Sell "more time"—that's what is given to the man who uses an automobile. Days become longer to him; his range of activity increases.

Sell "saving energy"—that's what a man does when he uses an automobile. He does not tire as quickly, and he is able to do more. He is kept fresh.

Sell "more business"—"more activity"—that's what a man is sure of with the use of a motor car. He is able to accomplish more.

Don't think that the demand is less—it is greater—but the reasons for buying have changed.

You must understand and interpret these new reasons properly. Awaken in each prospect the present day possibilities with the aid of an automobile.

CHEVROLET MOTOR COMPANY

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Minneapolis Dealers Making Many Changes

Agencies Being Shifted and Several New Companies Open Up—New Franklin Distributer

MINNEAPOLIS, Dec. 3—Changes in the automobile world have been numerous in the last week, consisting of removals and company changes. The Pelton Motors Co., 45 Tenth Street S., has assumed the distribution of the Franklin car in Minnesota. L. A. McKay, who represented this line, is vice-president of the Pelton Motors Co., of which J. George Pelton is president. With F. W. Greaves, P. J. Kelly and G. E. Rydell, Mr. Pelton is a director.

The Harmon Rubber & Mfg. Co., a Minnesota corporation, licensed by the Minnesota Securities Commission, has been announced as the reorganization of the Harmon Tire & Repair Co., 1211 Harmon Place, which plans to build a factory to make automobile inner tubes and rubber mechanical goods.

To get the business on a permanent basis the D. A. Odell Motor Car Co., 131 Tenth Street S., Minneapolis, has incorporated at $150,000. The company sells Pierce-Arrow cars in the Tri-Cities of Minnesota. D. A. Odell is president and treasurer, George O. Watson is vice-president, and F. P. Boran is secretary.

New accessions to the Tenth Street Motor Row, moving from other places, are the Speed Motor Co., handling the Harroun, and the Roberts Motor Sales Co., handling the Stanley Steamer, at 111 Tenth Street S. In a new building at 130 Tenth Street S. the White Garage has opened a salesroom, retaining the service station at 631 Tenth Street S. The new King 8 Motors has opened a salesroom adjoining at 126-128 Tenth Street S.

The Rauch & Lang Electric Car Co., 1207 Harmon Place, has added to its extensive line the distribution of the Chandler car in Minnesota, North Dakota, northern South Dakota and western Wisconsin. This branch was formerly with the Hess-Thompson Motor Co.

Four Companies Merged

CHICAGO, Dec. 3—The Combined Motors Corp. of Chicago has been organized and chartered under the Illinois laws to combine the business of the Bour-Davis Motor Car Co., the Shadburne Bros., the Dixie Motor Car Co. of Louisville, Ky., and the Collins Body Co. of St. Louis. Offices of the company have been established at Chicago and St. Louis.

The purpose of the organization is to enable a larger output and to increase efficiency due to the combination of the resources and purchasing power. It is planned eventually to produce practically every part of the cars in the organization, and it is stated that negotiations are pending with a rubber company. Foreign trade is to be fostered by the establishment of agencies in Japan, Sweden, Greece, Italy, Cuba, Philippine Islands and the South American countries to care for an expected demand after the war.

The organization has factories at Frankfort, Ind.; Louisville, Ky., and St. Louis, Mo. Another plant has been secured at Benton, Ill., and this will soon be in operation. Manufacture on the Bour-Davis cars, Shadwyck cars and the Dixie Flyer will be continued.

Montreal Show Jan. 28

MONTREAL, Dec. 3—The National Motor Show of Eastern Canada will be held here during the week of Jan. 28, and it is expected that it will be the only show held in Canada this season. If this is the case, it may be the only show in the British Empire. All positions on the show staff will be filled by returned soldiers, according to the manager, T. C. Kirby.

Los Angeles Show Sold Cars

LOS ANGELES, Dec. 3—Motor vehicle dealers and distributers are jubilant over the success of the seventh annual show, which closed here last week. The show brought about a remarkable stimulation. Sales approximating $225,000 were made as a direct result.

Standard Charge For Outside Service

THE Wetmore-Quinn Co., Paige distributer, has established a standard rate for all outside service and for towing in cars. This has been found necessary for the care of the service overhead and is as follows:

1—No charge is made for an amount of less than one hour, regardless of the nature of the work.

2—All labor charges are made on the basis of 90 cents per hour.

3—Only one workman is to go out on a service call unless definite instructions are received from the owner.

4—Owners are not to pay the workman for any work done in starting a car (this applies to cars under the service guarantee).

5—All towing-in charges are to be based on the flat rate plus a labor charge of 90 cents per hour, the flat rate being as follows:

Distance Radius	Charge
1 mile	$1.00
2 mile	1.50
3 mile	2.00
4 mile	2.50
5 mile	3.00
6 mile	3.50
7 mile	4.00
8 mile	4.50
9 mile	5.00
10 mile	5.50

Missouri Doubles Fee For Car Registration

New Law, Effective January 1, Requires Owners to Be Licensed—Register Transfers

ST. LOUIS, Dec. 1—The new motor car law, which becomes effective with the New Year, doubles the State fee for cars and prohibits the driving of cars by persons under 18 years of age. Only owners can drive cars without a chauffeur's license. The State fees are:

	New Rate	Old Rate
Less than 12 hp	$4.00	$2.00
12 to 24 hp	6.00	3.00
24 to 36 hp	10.00	5.00
36 to 48 hp	14.00	7.00
48 to 60 hp	16.00	8.00
60 to 72 hp	20.00	10.00
72 or more hp	24.00	12.00

Any owner selling his car must make affidavit to the sale, else the license transfer will not be recognized. The city licenses will be issued after the owner obtains one from the State, but both will be effective after Feb. 1. Cities are prohibited from raising the license price. The State Commissioner is authorized to establish agencies in cities of more than 200,000 where licenses will be issued. St. Louis will have a branch.

Takes on Rudge-Whitworth Wheels

PHILADELPHIA, Dec. 2—The Bearings Co. of Pennsylvania at 684 North Broad Street, has taken on the sale of Rudge-Whitworth wire wheels, with jurisdiction over the service in New York, Philadelphia, Baltimore and Washington.

Change Class B Truck

WASHINGTON, Dec. 3—A few changes have been made in the class B military truck as a result of the testing now in progress. The rear wheels are to be 40 in. diameter so as to increase the clearance over the brake drums which will add a tire size to the stock to be carried. This, however, really does not mean another tire to be stocked, because the use of wide single tires would have necessitated a section only good for the rear wheels of class B.

Work is being carried out on a new carbureter which will be special. A small committee of carbureter men have evolved and tried out a design which includes no patented features whatever and the preliminary results are said to be very good. For transferring gasoline from the reserve tank under the seat to the dash tank a hand pump is to be fitted.

The design of the ¾-ton truck is proceeding. This will be used by all departments of the army and also by the post-office. It is not expected to be ready for some considerable time as the requirements to be satisfied are so varied. The work, under General Baker's direction, is being handled by H. T. Thomas, chief engineer Reo Motor Car Co.; B. F. Wright, chief engineer Federal Motor Truck Co., and C. T. Myers, consulting engineer.

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Oakland Buys Tennant Business in Chicago

Factory Takes Over Tennant Oakland Company and Tennants Retire to Enter Allied Field

CHICAGO, Dec. 1—The Oakland Motor Car Co., Pontiac, has bought the business of the Tennant Oakland Co., Chicago distributer for the Oakland, and W. G. and J. G. Tennant, for 15 years in the retail automobile trade, have retired from the passenger car business. The change was made when O. F. Berkey, for the last year manager of the Chicago wholesale department, formally took over the showrooms and service station to-day.

The staff of the Tennant Oakland Co., with the exception of the Tennants and K. E. Potter, secretary of the agency, will be retained by the branch, and the service policy of the Tennant company will be maintained both for cars sold in the future and those already delivered. The present used-car department of the Tennant company will be retained for the closing out of the stock of used cars, for the delivery of new cars already sold and for the winding up of the business of the retiring company.

The transfer includes the acquisition by the Oakland plant of the Tennant Oakland transportation line of thirty railroad cars used to move motor cars from the factory at Pontiac to Chicago.

The Tennants will enter a new business in a field closely allied with the motor car business, though they are not yet ready to announce its exact nature. The two brothers are pioneers in the retail motor car business, having been identified with the distribution of the Peerless, Marmon, National, Abbott-Detroit, Mercedes and Simplex cars. W. G. Tennant also was associated with Winton at one time, and is secretary of the Chicago Automobile Trade Association. The Tennant Oakland Co. was organized about three years ago.

Silvex Is Reorganized

NEW YORK, Dec. 3—The Silvex Co., Bethlehem, Pa., has reorganized and reincorporated, with additional capital, to provide for increased business. It is making many plugs for use in aviation motors. The new stock consists of $1,000,000 common and $1,000,000 preferred. The board of directors consists of E. H. Schwab, president; J. H. Ward, E. B. Turn, W. M. Davidson and W. H. Lumpkin, all of Bethlehem. The company will shortly move into a new concrete and steel factory.

Racine Moving to Appleton

APPLETON, Dec. 3—The Racine Motor Truck Co., Racine, Wis., which was incorporated about 6 months ago to take over and develop the motor truck business conducted for many years by Piggins Bros., Racine, and capitalized at $500,000, has decided upon Appleton, Wis., as the location of its permanent factory and headquarters. The company has been manufacturing Reliance trucks in leased quarters in Racine since its organization. The corporate style probably will be changed to Reliance Motor Truck Co. In the new Appleton plant the line of products will be increased to include 1¼, 2½, 4 and 6-ton trucks, with internal gear drive. The company also intends to manufacture axles for the truck building trade. The new plant is expected to be ready about Feb. 15 or March 1.

Bid $59,100 for Pathfinder

INDIANAPOLIS, Dec. 1—L. Goldstein Sons of Philadelphia have submitted the highest bid for the plant of the Pathfinder Motor Car Co., which was offered for sale here by the receiver. A member of the firm submitted a bid of $59,100 for the plant. Officials of the American Motor Parts Co. of this city said that the company was a part of L. Goldstein Sons, and that the Pathfinder plant probably would be used in connection with the work of the American Motor Parts Co., although representatives of the Philadelphia concern as yet have not authorized such an announcement.

Storage Plant for Springfield

SPRINGFIELD, MASS., Dec. 3—The Springfield Auto Storage Co. has leased the buildings of the Eastern States Expositions to store cars shipped into this city. The railroad tracks are at the door and facilities for temporary storage are good.

Stegeman to Become Hercules

MILWAUKEE, WIS., Dec. 3—Although the reorganization of the Stegeman Motor Car Co. has not been fully completed, it has become known that the business has been reincorporated under the name of Hercules Motor Truck Co., with a capital stock of $100,000, and the manufacture of six-cylinder worm-drive trucks will be continued as before. Oscar Stegeman, president and general manager, retired several weeks ago, as previously noted. Arthur Davidson of the Harley-Davidson Motor Co., Milwaukee, has held a large financial interest for some time past, and will take an active part in the management.

Staude Mak-a-Tractor Reorganized

ST. PAUL, Dec. 3—The E. G. Staude Mfg. Co. has reorganized, filing articles of incorporation at Pierre, S. D., and increasing its capital from $150,000 to $5,000,000. The company expects to make 50,000 Mak-a-Tractors between Jan. 15 and Oct. 1, 1918; about 20,000 unfilled orders are on hand. Before next April $500,000 is to be expended enlarging the plant, which is on the Twin Cities midway line. B. J. Cassaday, of Minneapolis, was elected vice-president. Other officers were re-elected. In 1916 the company made 50 machines, in 1917 7000.

Show-the-Car-Contest For 200 Franklin Men

Point Contest for Dealers Giving Greatest Number of 6-Mile Demonstrations to Prospects

SYRACUSE, Dec. 3—Over 200 Franklin men throughout the country are taking part for the 2 weeks beginning Nov. 26 in an extensive competitive publicity effort having a purse of $2,600 at stake. The winner of this event, the Show-the-Car Contest, will be the dealer or salesman who gives a six-mile ride in the Franklin car to the greatest number of important passengers.

A valuation for all classifications of passengers has been devised by the factory, and it ranges from 500 to 100 points per person. Professional men represent a certain value; business men, another; bankers, another; while there are separate classifications for farmers, city and State officials, club and society women; in fact, classifications for every walk of life. Two hundred extra points are credited to each passenger who drives the car for at least two miles.

The purse will be shared in by the twenty men with the highest scores, the individual prizes ranging from $500 to $50. The man with the thirteenth highest score can consider himself lucky, as this position bears a special prize of $150. No. 13 has always been a lucky talisman for Franklin undertakings, dating back to the inception of the company.

A unique feature of this contest is that it reverses the obligation attached to the usual demonstration, inasmuch as the passenger, instead of being a "prospect" is simply a participant in what the Franklin company regards as the equivalent of a nation-wide sampling campaign.

Urge Community Tractor Use

HARRISBURG, PA., Nov. 27—Secretary of Agriculture Chas. E. Patton has suggested the use of community tractors as a means of overcoming the labor shortage in farm work. He recommends that all chambers of commerce and similar organizations immediately take steps to secure tractors, and during the winter plan schedules whereby farmers in each section can have their work done, even to the extent of working day and night.

Truck Makers in Washington

WASHINGTON, Dec. 4—Between 40 and 50 members of the automobile industry are in Washington to-day at the Military Truck Production Board where assembly contracts will be discussed and arranged for assembly of the Class B heavy duty war trucks. Among the makers here are: T. D. Barney, of the United Motors Co.; Arthur T. Murray, of the Bethlehem Motor Truck Co.; O. E. Stolt, General Motor Truck Co., and E. O. Suton, Knox Motor Truck Co. A list of those receiving contracts will be issued within the next few days.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Louis Logie, manager of the Maxwell Motor Co., Ltd., Canada, is also manager of the Canadian Chalmers Co., Harry S. Lee, former manager, having resigned.

Ralph L. Corey, formerly assistant to the general manager of the S. F. Bowser & Co., has received a commission as lieutenant in the division of aeronautical engineers, Signal Corps.

John M. Kearney, connected with the Willys-Overland Co., New York, has resigned to become special representative of the Graham Brothers Sales Co., New York.

Robert L. Ware has been elected vice-president and treasurer of the Smith Signal Corp., New York. He will supervise the sales and advertising of the Smith signal and the other devices which this company plans to market.

L. A. Sommer has been appointed vice-president and assistant general manager of the Allen Motor Co., Fostoria, Ohio, in charge of engineering and production.

C. C. Homan, formerly vice-president in charge of the producing and manufacturing of the Hal Motor Car Co., is major in the Quartermaster's Department of the Army and has received orders to report for duty.

E. Harvey Mendel, formerly sales manager of the Rex Ignition Co., New York, has joined the sales forces of the Champion Ignition Co., Flint, Mich.

Anthony Fickel, manager of the Cleveland branch of the Mason Tire & Rubber Co., has been made manager of the New York branch. W. S. Steiss, formerly manager of the Akron branch, is in charge of the Cleveland branch.

Frank W. Piling, former Eastern district supervisor for the Liberty Motor Car Co., Detroit, is district sales manager of the Hupp Motor Car Corp. in the Middle West. His headquarters are in Detroit.

J. M. Johnson, local representative of the Laidlaw Co., has left to take a position in the New York office. William Sweetland, from the Cleveland office, is taking his position.

Guy Vaughn, chief inspector and sales manager of the F. B. Stearns Co., has resigned to assume a position near New York.

A. R. Johnson is assistant advertising manager of the Hyatt Roller Bearing Co. He was formerly assistant advertising manager of the Cadillac Motor Car Co.

Arthur H. Cummings is advertising manager of the Timken Roller Bearing Co., having resigned as assistant advertising manager of the B. F. Goodrich Co. of Akron. No successor has as yet been appointed.

Miss Katherine Langeloh, Spokane, has recently joined the sales staff of the Traders' Motor Supply Co. She is the first Ford saleswoman in the Northwest.

H. F. Shepherd, Des Moines, for a number of years vice-president and general manager of the Hippee States Auto Co., has left that concern and will become head of the new accessory and supply department of the Downing Electrical Co.

R. S. Whiteside, branch manager of the Hess-Bright Co., Philadelphia, and his assistant, **G. L. Jenks,** have enlisted in the aviation section of the U. S. Army. The retail branch of the company in Philadelphia has been closed and the business will be carried on from the factory.

R. B. Crane, former sales manager of the Double Fabric Tire Co., has been appointed manager of the sundry division of the Racine Rubber Co., Racine, Wis.

W. H. Querpel has become associated with the Kelly Springfield Tire Co. and will cover New York City. Formerly he represented the Firestone Tire & Rubber Co.

Cliff Noble, formerly with the advertising department of the Hyatt Roller Bearing Co., is now connected with the advertising department of the Liberty Motor Car Co.

Melvin F. Doty has been appointed production manager of the Michigan Steel Casting Co., Detroit. He formerly was with Isaac G. Johnson & Co., Spuyten Duyvil, N. Y.

J. G. Matlack, former secretary and general manager of the Ajax Rubber Co., has been made president of the Globe Rubber Tire Mfg. Co., Trenton, N. J. His office will be in New York. Between his two rubber connections, Matlack was associated with the American Writing Paper Co., which position he still holds.

Joseph H. Hoffman, St. Louis, for several years connected with the motor accessory department of the Simmons Hardware Co., has been made manager of the motor accessory department of Montgomery-Ward Co. of Chicago.

Charles H. Minto has been appointed Western District Manager of the Carlisle Cord Tire Co., with headquarters in San Francisco. Minto has long been associated with the tire industry.

Detroit-Chalmers Top $97.50

PONTIAC, Dec. 3—Detroit Weatherproof Body Co. is building a weatherproof top for a Chalmers car, touring model, to sell for $97.50. In a recent issue of Motor World we ran an advertisement in which the price of this top was erroneously given as $185, which price applies to the Chandler touring top and not to the Chalmers top.

Coast Plant for Republic

DETROIT, Dec. 3—The Republic Motor Truck Co., Alma, Mich., is reported to be considering the erection of an assembling plant in San Francisco. It recently paid $125,000 for property in Los Angeles for a similar purpose.

Southern Sales Boom Following Prosperity

Cotton and Farm Products at High Prices Bring Unprecedented Run of Car Sales

SAVANNAH, GA., Dec. 1—This is the South's year for buying motor cars. Never before have the residents below the Mason and Dixon line been such a factor in the automobile market as they have this fall, and from the way that the orders keep coming in from the land of sunshine and cotton, it appears that the winter months will also see a large number of motor cars delivered in this section.

Dealers in the Southern territory say that they have never had such a season, and they point out that the eagerness of the Southerners for motor cars is indicative of the opening of a much larger sales field in all the Southern States.

The fact that the orders come from the smaller cities of the South, as well as the big centers, is evidence of the way in which the South is seeking automobiles.

Following this year the South forever will be a much better retail field. This assertion is based on the belief that one motor car in a community is salesman for several others, because it creates an appetite for ownership, which cannot be aroused by any other thing.

Because of the big cotton crop and other farm products in the South this year, the country as a whole has more money than formerly. The South is speeding up to do its part in the present national crisis, and speeding up means more motor cars.

Postpone Akron Show

AKRON, O., Nov. 27—The Akron Automobile Dealers' Association has decided to postpone its annual show until early spring. The show was formerly scheduled for from Dec. 3 to 8.

Motor Car Security Quotations

	Dec. 1, 1917 Bid	Asked
*Ajax Rubber Co.	47	51
†J. I. Case T. M. Co., pfd.	..	78
Chalmers Motor Co., com.	2	4
Chalmers Motor Co., pfd.	..	50
*Chandler Motor Co.	65½	66
Chevrolet Motor Co.	64	67
*Fisher Body Corp., com.	20	34
*Fisher Body Corp., pfd.	75	80
Fisk Rubber Co., com.	..	45
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	70	80
Firestone Tire & Rubber Co., com.	96	100
Firestone Tire & Rubber Co., pfd.	97	100
*General Motors Co., com.	88¼	90
*General Motors Co., pfd.	74	76
*B. F. Goodrich Co., com.	35½	37
*B. F. Goodrich Co., pfd.	93⅛	97
Goodyear Tire & Rub. Co., com.	144	147
Goodyear Tire & Rub. Co., pfd.	95	98
Grant Motor Car Corp.	2	3
Hupp Motor Car Corp., com.	2	3
Hupp Motor Car Corp., pfd.	74	79
International Motor Co., com.	7	15
International Motor Co., 1st pfd.	30	50
International Motor Co., 2nd pfd.	20	25
*Kelly-Springfield Tire Co. com.	40	41
*Kelly-Springfield T. Co. 1st pfd.	75	82
*Lee Rubber & Tire Corp.	13	14
*Maxwell Motor Co., Inc., com.	25¼	28
*Maxwell Motor Co., Inc., 1st pfd.	54	56
*Maxwell Motor Co., Inc., 2nd pfd	18½	19
Miller Rubber Co., com.	114	120
Miller Rubber Co., pfd.	.	99
Packard Motor Car Co., com.	110	118
Packard Motor Car Co., pfd.	92	96
Paige-Detroit Motor Car Co.	14	16
Peerless Truck & Motor Corp.	12	14
Portage Rubber Co., com.	106	110
Regal Motor Car Co., pfd.	10	20
†Reo Motor Car Co.	17	19
*Saxon Motor Car Corp.	5½	6
Springfield Body Corp. com.		
Springfield Body Corp. pfd.		
Standard Motor Construction Co.	9½	10½
Standard Parts Co.	..	75
*Stewart-Warner Speed. Corp.	47	48
*Studebaker Corp. com.	45½	46½
*Studebaker Corp. pfd.	..	95
Swinehart Tire & Rubber Co.	20	23
United Motors Corp.	16	16½
*U. S. Rubber Co. com.	52½	53½
*U. S. Rubber Co. pfd.	95½	97
*White Motor Co.	36½	38
*Willys-Overland Co. com.	19	20
*Willys-Overland Co. pfd.	70	71

*At close Dec. 1, 1917. Listed N. Y. Stock Exchange.
†Par value, $10.

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Stewart Truck Line Includes Four Sizes

Few Changes Made in ¾, 1, 1½ and 2-Ton Models—Standard Parts Used Throughout

BUFFALO, Dec. 3—Four models will comprise the line of the Stewart Motor Corp., Buffalo, N. Y., for 1918, of ¾, 1, 1½ and 2 tons capacity. In the main the continued models are the same as the present ones, but there are a few changes. Prices are: ¾-ton, $750; 1-ton, $1,295; 1½-ton, $1,695, and 2-ton, $2,195.

The ¾-ton now uses a Milwaukee engine and the 1½-ton a Continental, while the two larger models remain Buda equipped. The bores and strokes are respectively, 3⅛ x 4¼, 3⅛ x 5⅛, 3¾ x 5, 4½ x 5½.

Standard parts are used such as Bush radiators, Detroit springs, Zenith carbureters and Berling magnetos. The smaller model has a dry disk clutch made by the Mechanics Machine Company and a unit gearbox from the same concern, while the steering gear is a C. A. S. The larger models have a Fuller dry disk clutch, Fuller gearbox in unit with the engine, and Ross steering gear.

Wheelbases are respectively 110, 118, 140, 156 in. Tires are 32 x 4, 34 x 4½, 34 x 4. The last has duals in the rear. The first two are pneumatic. Gear ratios are 6 to 1, 7 to 1, 7 to 1, 9 to 1.

A description of the 1½-ton, the leader, reflects the characteristics of the line. The engine is a 35 hp. four-cylinder L-head design with three-bearing crankshaft. It has a constant level oiling system maintained by plunger pump. The powerplant is a unit with a dry-disk clutch and three-speed selective gearset, all suspended on three points. Ignition is by Berling high-tension magneto with fixed spark, and the carbureter is a vertical Zenith controlled by an accelerator. Cooling is by thermo-syphon with cast tank, armored radiator and 16-in. steel fan mounted on ball bearings.

The clutch is a dry-disk, Raybestos against steel, and drives a transmission steel. Annular ball bearings are used throughout.

The drive shaft is tubular with two universals. The front axle is a drop-forged I-beam with nickel steel steering spindles, and large roller bearings in the hubs.

The frame is a straight side channel type heat treated. The overall length is 204 in., depth 5½ in. and width 2½ in., making it suitable for 10-ft. bodies.

Artillery wheels are used with twelve spokes in front wheels and fourteen spokes in the rear. Firestone or United States solid pressed-on tires are used.

Brakes are external contracting. The service brake acts on the rear wheel drums and the emergency brake on the propeller shaft. Both bands are lined with Raybestos.

The chassis is painted standard Stewart red, with fenders and runningboards in black. Equipment includes driver's seat and cushion, side and rear oil lamps, channel bumper, mechanical horn, tool kit, tool box and front fenders.

Collier Moves to Bellevue, O.

BELLEVUE, O., Dec. 2—The Collier Motor Truck Co. has moved to this city from Cleveland, and R. A. Palmer, formerly of the Pontiac Chassis Co., Pontiac, Mich., is in charge of production. This company manufactures a 1500-lb. truck selling for $885 complete, with a choice of any one of four bodies. It is driven by a 3¼ x 5-in. Lycoming engine, through Salisbury axles having a gear ratio of 6 to 1. The truck is also equipped with Auto-Lite starting and lighting system.

Completing Hal-Abbott Merger

CLEVELAND, Dec. 3—As announced in a previous issue of Motor World, the Abbott Corp. and the Hal Motor Car Co. are planning a merger, and a creditors committee of the Abbott Corp. will report on the details at a meeting of the stockholders to be held Dec. 7. Of this committee, R. D. Mock, treasurer of the Hydraulic Pressed Steel Co., is chairman, and J. H. Baldwin, president of the Dunlap-Ward Advertising Co., and Louis N. Gay, president of the Consolidated Auto Top Co., are members. The basis of the proposed merger is that holders of preferred stock of the Abbott Corp. will secure one share of the preferred of the new organization and a half share of the common of the same, in exchange for one share of Abbott preferred. Holders of Abbott common are to go in share for share. It is expected that the new company will have about $1,800,000 stock.

Plan War Meeting Dec. 12

WASHINGTON, D. C., Dec. 3—The Chamber of Commerce of the United States has issued a call to the chairmen of the war service committees representing the various industries of the country to attend a meeting Dec. 12. The chairmen will work primarily to perfect plans for co-operation with the Government and will discuss many of the vital problems with which all industries are confronted during the war.

Court Decides Munger Owns His Rim Patent

Suit Against Perlman Goes in His Favor—Assignment of Patent Made but Title Never Changed

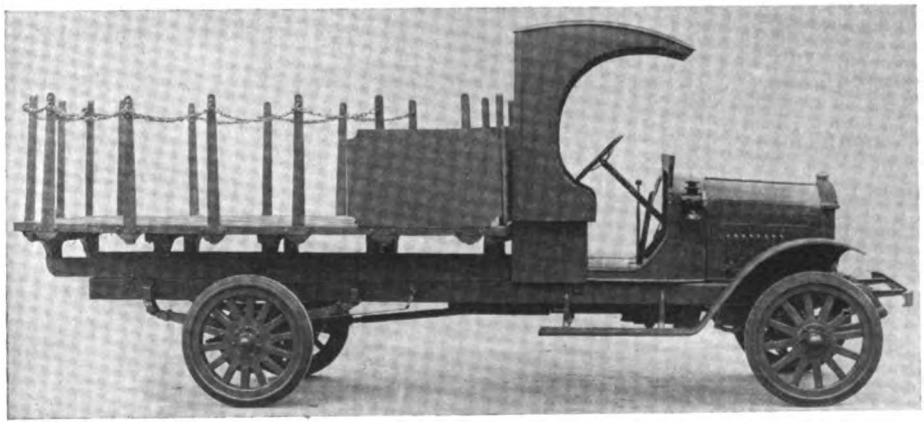
NEW YORK, Dec. 3—The dispute as to whether Louis de F. Munger owns his rim patent has been settled in favor of Munger. He brought suit against the Perlman Rim Corp. on his patent No. 638,588, and litigation was progressing nicely when the Perlman company charged that Munger did not own the patent. The court holds that a conditional assignment of the patent was made some time ago, but that title never passed because the conditions were not fulfilled, thus leaving Munger still the owner of the patent. He is also reaffirmed in his right to collect royalties.

Mitchell Passes Dividend

RACINE, WIS., Dec. 2—The Mitchell Motors Co. has passed the usual quarterly dividend of $1.50 a share. The company recently received a Government order for Four Wheel Drive trucks through the Four Wheel Drive Co., Clintonville, which has licensed it to take care of the contract. This contract will require substantial working capital and suspension of the dividend is decided upon by the directors in order to conserve the cash resources of the company. In the fiscal year ended Oct. 81 last, profits are estimated to have been between $1,100,000 and $1,200,000, which is equivalent to about $9.50 a share. Output of cars in the period was about 12,000. Profits in 1916 were $1,188,398, equal to $9.50 per share. The output was 11,000 cars.

Jordan Ships 153 Cars in 24 Days

CLEVELAND, Dec. 3—During the 24 days from Oct. 20 to Nov. 16 the Jordan Motor Car Co. shipped 153 cars. This is normal production on the 2000-car output planned at the beginning of the year. With this statement of output the company issued an itemization showing a net profit of $30,699.93, or 13.47 per cent.



The Stewart line of trucks, of which this is representative, includes four sizes built up of standardized units

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Eastern Lines Create Committee

WASHINGTON, D. C., Dec. 3—Action of vital interest to the automotive industries of the country in connection with the present freight congestion situation has been taken by operating officers of the Eastern lines. There has been created a committee which will be in full charge of the railway pool ordered by the railroads war board. This committee will sit continuously at Pittsburgh until the entire traffic problem produced by the abnormal war business in the district east of the Mississippi and north of the Potomac and Ohio Rivers has been solved.

S. A. E. Aids International Standards

WASHINGTON, Dec. 3—Edwin H. Ehrman, factory manager of the Chicago Screw Co., has been appointed a delegate to represent the Society of Automotive Engineers at the International Screw Thread Conference to be held in London, England, in the near future. H. D. Church, chairman of the Truck Standards Division of the S. A. E., resigned at to-day's meeting of the council, held at the society's offices in the Munsey Building, due to lack of time to carry on the work. No successor has as yet been appointed. H. L. Horning, chairman of the Traction Standards Division, resigned that position due to lack of time because of his extra heavy duties as chairman of the Automotive Products Section of the Council of National Defense. No successor has been appointed.

Coming—THE SHOW CALENDAR—*Events*

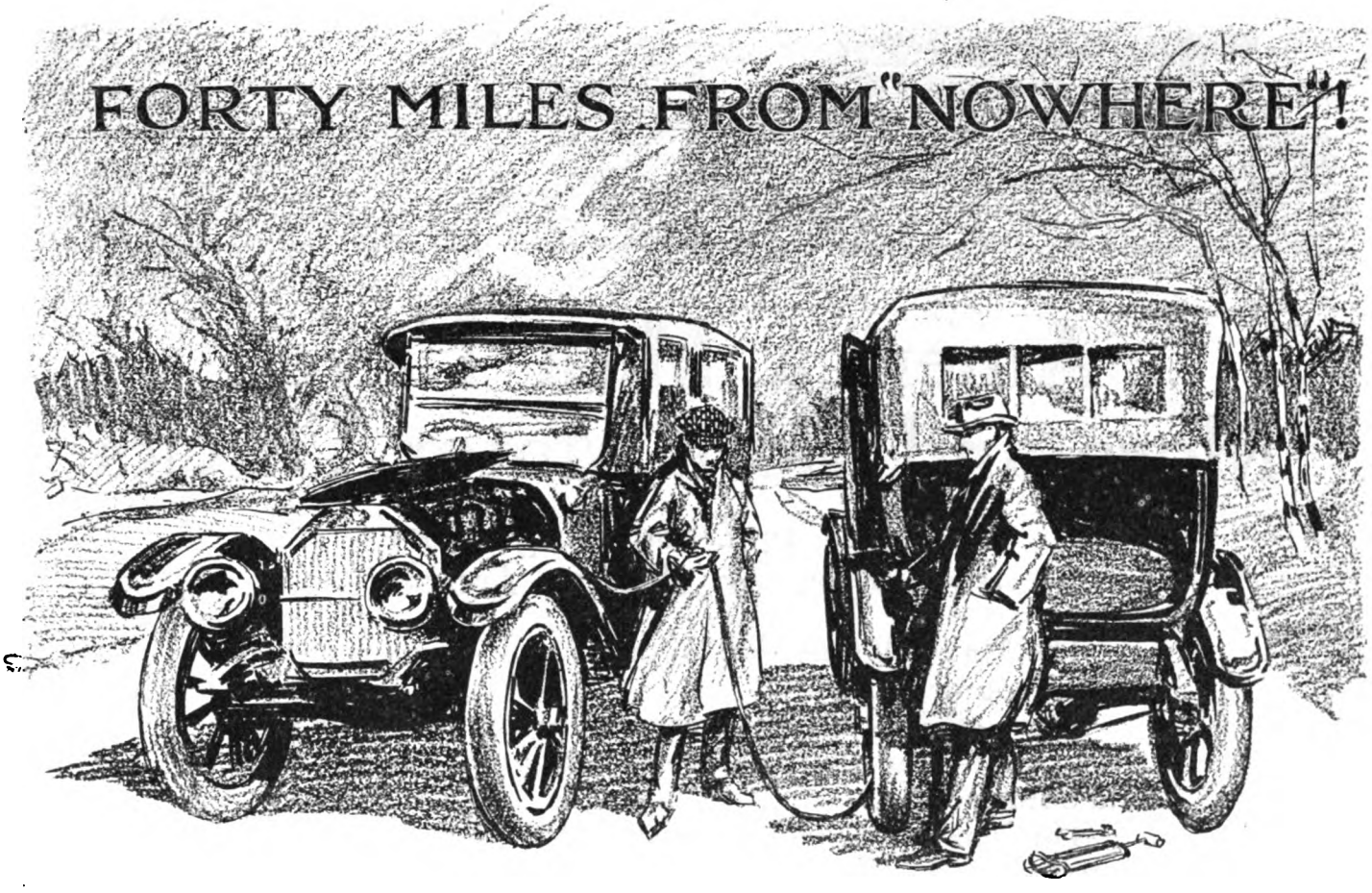
Is YOUR Show Listed? Send Us the Dates

Springfield, Mass.	Auditorium Building, United Shows Co.	Dec. 3-9
Ft. Dodge, Ia.	Ft. Dodge Auto Dealers' Assn G. W. Tremain, Mgr.	January 1918
New York, N. Y.	Salon, Automobile Salon, Inc., Astor Ballroom. John R. Eustis, Mgr.	Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-12
Kansas City, Mo.	Third Annual Tractor Show	Jan. 11-16
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wannamaker's Garage.	Jan. 12-19
Rochester, N. Y.	Tenth Annual Exposition Park C. A. Simmons, Mgr.	Jan. 14-19
Detroit, Mich.	Willis Ave. Overland Service Station.	Jan. 19-26
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
York, Pa.	York Auto Dealers' Assn., Queen St. Tabernacle. T. F. Pfeiffer, Sec.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn. Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 28-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Minneapolis, Minn.	Minneapolis Auto. Trade Assn Walter B. Wilmot, Mgr.	Feb. 2-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn. E. E. Peake, Mgr.	Feb. 9-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
San Francisco, Cal.	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet & Dean Schooler, Mgrs.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-27
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome.	Feb. 18-23
Des Moines, Ia.	Second Annual Truck, Auditorium. Dean Schooler & C. G. Van Vliet, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., Twenty-third Regiment Armory. I. C. Kirkham, Treas.	Feb. 23-Mar. 9
	Commercial Vehicles	Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn., Auditorium.	March
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino. B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clark G. Powell, Mgr.	Feb. 23-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13

Conventions

Columbus, Ohio	Convention Ohio Automobile Trade Assn., Virginia Hotel	Dec. 4 1918
New York	Nat'l Auto Dealers' Assn., Meeting board of directors and vice-presidents from Eastern States.	Jan. 7-8
New York	Convention, National Assn. of Auto Accessory Jobbers, Hotel Astor.	Feb. 11-16

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10 Miles from the nearest garage

Zero weather—cold, biting winds—a soft tire; then out in the cold jacking the car and the tiresome pump, pump, pump, until a "friend in need" happened along with the

KELLOGG Engine Driven Tire Pump

Car Makers Furnish the KELLOGG for these cars:

Anderson
Cadillac
Case
Cunningham
Daniels
Drummond
Fiat
Franklin
Hal
Haynes
King
Marmon

The recognized leader that many manufacturers have chosen as standard equipment because of its many exclusive features.

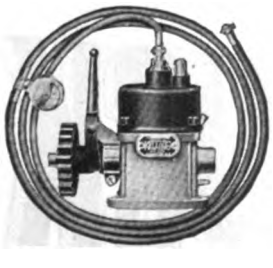
"No Oil Spray"—Guaranteed.

"All Metal Construction"—Everlasting.

For less than 5c. per hundred miles, you can keep your tires properly inflated; can be prepared against tire failures; can have plenty of PURE AIR—any time, *anywhere*.

If your car is equipped with the Kellogg, use it. If your car is not Kellogg-equipped—have one put on.

Send name and model of your car—if owner; also send dealer's name for full information.



Murray
Moline Knight
McFarlan
National
Overland 89-6
Paige
Peerless
Simplex
Standard
Stephens
Winton
Willys-Knight 88-4 & 88-8

Use the KELLOGG Save your Tires

KELLOGG MFG. CO., ROCHESTER, N.Y.

Branches and Distributors in all Principal Cities

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Speedy—Efficient—Economical Makeshift—Unreliable—Costly Slow—Uncertain—Costly

America Must Have More and More Motor Trucks

Business is Depending More and More on Motor Trucks

The Maxwell One-Ton, Worm-Drive Truck is sweeping the country today.

Maxwell Truck dealers are making big profits on their truck sales—and the truck sales are increasing by leaps and bounds.

The Maxwell One-Ton, Worm-Drive Truck is the best suited to 80 or 90 per cent. of the needs of the delivery business.

It is lower in cost and lighter in weight than any other truck of equal specifications—and very much more economical to operate.

We knew we had hit the nail on the head when we put the Maxwell truck on the market, but the tremendous and ever-growing demand for the Maxwell truck has amazed even us.

Our dealers are crying, "Rush trucks to us—we can sell all you send." Now we're prepared to supply them with the trucks.

Play safe.

We still have good fields open to the right dealers.

Get in on the ground floor. It may be too late tomorrow.

Write or wire quick.

Maxwell Motor Sales Corporation
Detroit Michigan

MAXWELL ONE-TON WORM-DRIVE TRUCK

MOST MILES PER GALLON - MOST MILES ON TIRES

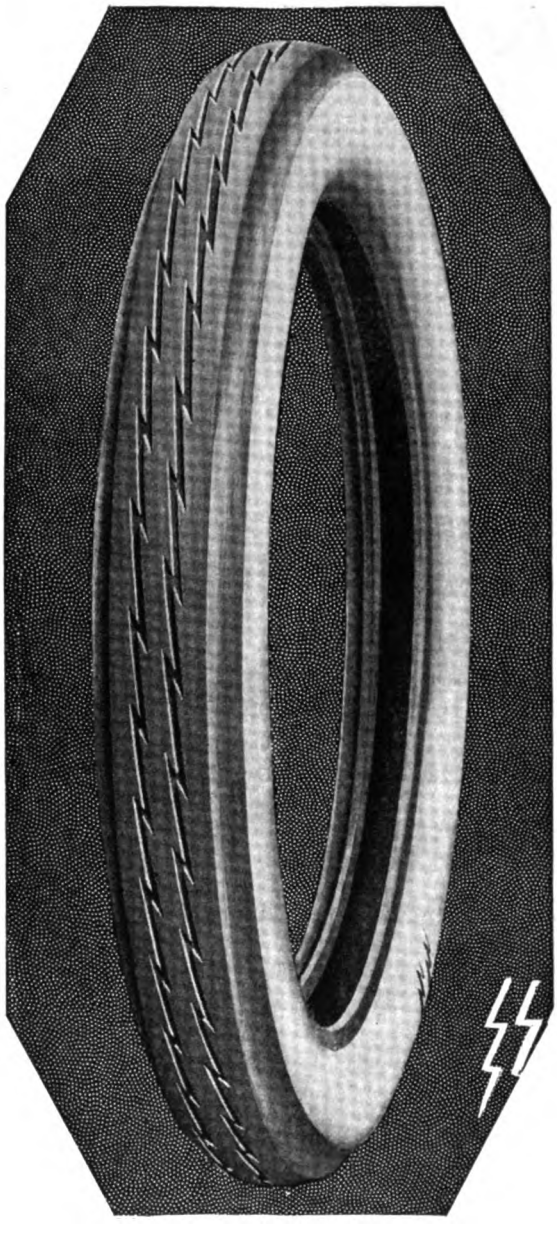
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JUST NOW READY A NEW TIRE MADE IN AN ASTONISHING WAY

Scores of strange machines are busy in a new factory, building America's newest tire creation, the Carlisle Cord Tire.

No man ever before saw machines like these. They weave the carcass of a tire from sturdy cotton rope. This rope they neither cut nor break. The carcass is formed in one continuous strand. And the machines are so incredibly efficient that they build a tire carcass far quicker than any other existing machines.

The new creation in pneumatic tires is just now ready. Dealers stand amazed when they inspect the tire.



It is resilient to a new degree; can withstand almost any punishment without bruise or damage; and a casing of the new type can be expected to out-travel other pneumatics 40 to 80 per cent.

One strand of the cotton rope supported 235 pounds of pig iron on test.

Few dealers ever dreamed the rubber industry would produce such a tire. But now that the sensational tire is perfected they can well imagine what a prize it is for a dealer.

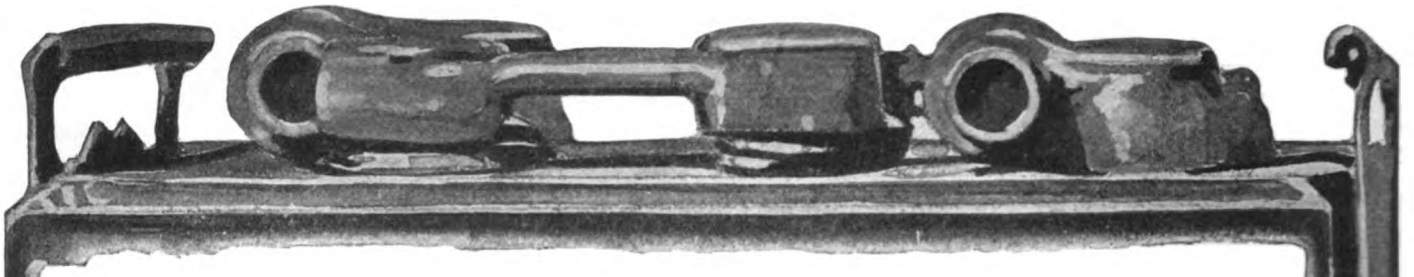
Make application quickly if interested in a dealership.

CARLISLE CORD TIRES

CARLISLE CORD TIRE CO., 250 WEST 54th STREET, NEW YORK CITY. FACTORY, ANDOVER, MASS.

When writing advertisers please mention Motor World—It identifies you

Digitized by Google



To the Battery Dealer

In volume of sales direct to the car-owner the Gould Starting-Lighting Battery ranks as one of the "big three."

Practically the whole of our large output is represented by *individual sales through dealers.*

Motorists are "sold on" the Gould Battery. Their Confidence in Gould Quality is shared by the great railways, by five world-power navies and by users in every field of battery service.

There is significance in this. Think it over.

Write for Name of Nearest Gould Distributor

Gould Storage Battery Co.
30 East 42nd Street, New York

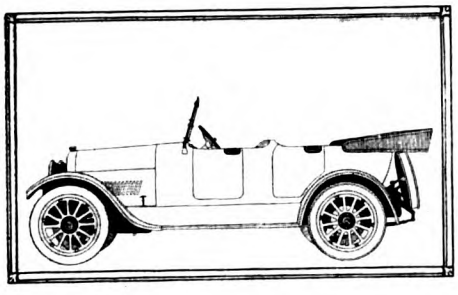
GOULD
STORAGE BATTERY

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STEPHENS Salient Six

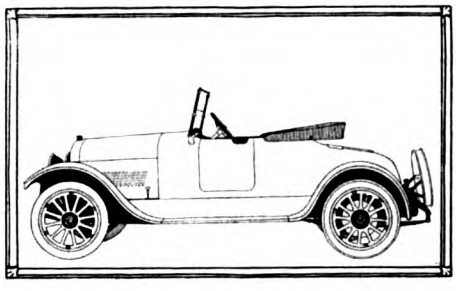
Perfected Overhead Valve Engine

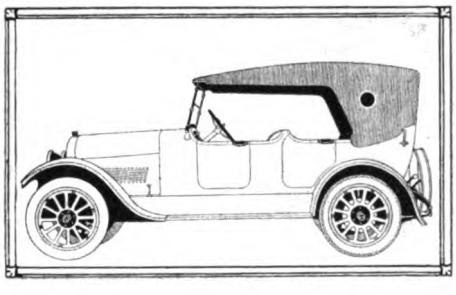
Burns ALL The Gasoline



A proved Car. Unquestionably the most advanced engineering achievement of the present day. Five passengers, $1485 f.o.b. factory.

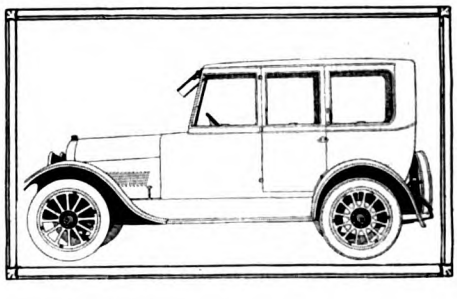
Three-passenger comfort, suspended on sensitive springs. The roadster with the rebound left out. Ample luggage space, $1485 f.o.b. factory.

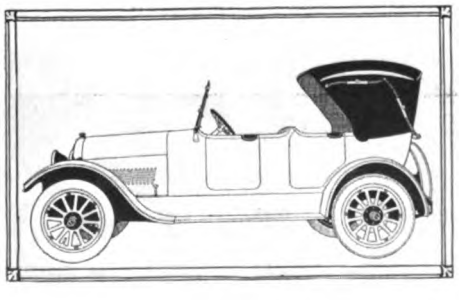




Having an adaptation of the popular low and narrow lines, yet with a Stephens individuality. Four passengers, $1550 f.o.b. factory.

A touring Sedan with the objections to this type removed. No heavy front posts. Every convenience. $1985 f.o.b. factory.





An expensively fitted and harmoniously designed Victoria top on the standard touring car. $1660 f.o.b. factory.

Stephens Motor Branch of Moline Plow Co.

Moline, Illinois
Factory: Freeport, Illinois

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The Chilled Rubber Process



THE RUBBER IN GILLETTE TIRES is toughened and tempered by our secret "Chilled Rubber Process."

This special treatment includes the tread, walls and body of the tire, and renders them extremely resilient, practically wear-proof and tear-proof.

EVERY GILLETTE TIRE CARRYING OUR TRADE MARK IS A MASTER TIRE. Every possible safeguard enters into their manufacture to prevent the slightest discrepancy. Far stronger than the written guarantee that accompanies each Gillette is the assurance of unusual service contained in the remarkable records made by Gillette Tires under unusual service conditions.

GILLETTE SAFETY TIRES possess the most remarkable wearing qualities of any fabric tires, this we have demonstrated time and time again.

GILLETTE CORD TIRES are truly called the "Long Distance Champions." In them is embodied the latest cord principles of construction, plus the "Chilled Rubber Process."

Safety

Digitized by Google

Gillette

Tires That Cost the Least

There is just **one way** to count your tire cost, and that is **per mile!** The price per tire is but a **single item** in your tire cost account.

Two $60 tires that outlast four $40 tires are **far cheaper than the $40 tires!** You pay $120 for them and **change once,** while for the $40 tires you pay $160 and **change three times!**

Three times the trouble, three times the labor, three times the delay!

Higher priced tires, of the Gillette standard, are not only cheaper in dollars and cents, but they save you precious time and the many incidental expenses incurred by frequent tire changing.

Never buy tires for their low price alone. Buy them for their low final **cost!** Check up the price **to the quality** you are getting—the service—the real wear—the amount of trouble and expense it is going to mean to you.

Gillette Tires Have a Marvelous Record of Extraordinary Mileage

Constructed by the "Chilled Rubber Process," they are made of rubber that is practically wear-proof, that retains its life and elasticity and has a tough, lasting quality all its own.

They cost you less per mile—per month—and per year!

To the Dealer They Represent a Permanent Tire Business—His Own for All Future Time

In addition to the distinct advantage of selling a tire of the very highest reputation, the Gillette Dealer is offered a co-operative sales plan that is unequaled in the trade.

Generous profits, absolutely assured for the future as well as the present, and a universal service for himself and his customers, as well as unique sales helps and wide advertising campaigns, are placed at the Dealer's disposal in plain English. You will be interested in the short, simple, co-operative contract of the Gillette Company.

Write or wire for full particulars of unusual sales plan.

THE GILLETTE RUBBER COMPANY

Chicago Office
122 Michigan Ave.

General Sales Office
1834 Broadway, New York

Factories
Eau Claire, Wis.

Tires

Digitized by Google



When a Dealer Goes Up Against an Insurance Adjuster

Do you know the first question Mr. Adjuster asks? It is: "Where are your books?"

All that you have worked so hard to get together, and your future for several years to come, depends upon your answer to that question.

Garages and accessory stores do burn; they make wonderfully complete jobs of it, too.

Your accounting system is of as much importance as your insurance policy; it's your second line of trenches.

Just how you keep your records isn't as important as the care with which **everything** is entered.

Many good garage and dealer account systems have been worked out by men who were not bookkeepers. They were just careful folks who **put it all down.**

If you haven't a regular bookkeeper, get one to give you a little of his time at odd moments.

Your Books Are Your Protectors

Send for your copy of our Booklet—by an expert—on "How to Run a Garage."
Manufacturers, Jobbers and their Salesmen are anxious to co-operate with you. Ask them for ideas.

THE NATIONAL ASSN. OF AUTOMOBILE ACCESSORY JOBBERS MEMBER

National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BLDG. CHICAGO, ILL.

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MICHELIN TIRES mean publicity—and plenty of it



Dealers who sell Michelins need not worry about advertising—Michelin co-operates fully.

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Talks to the

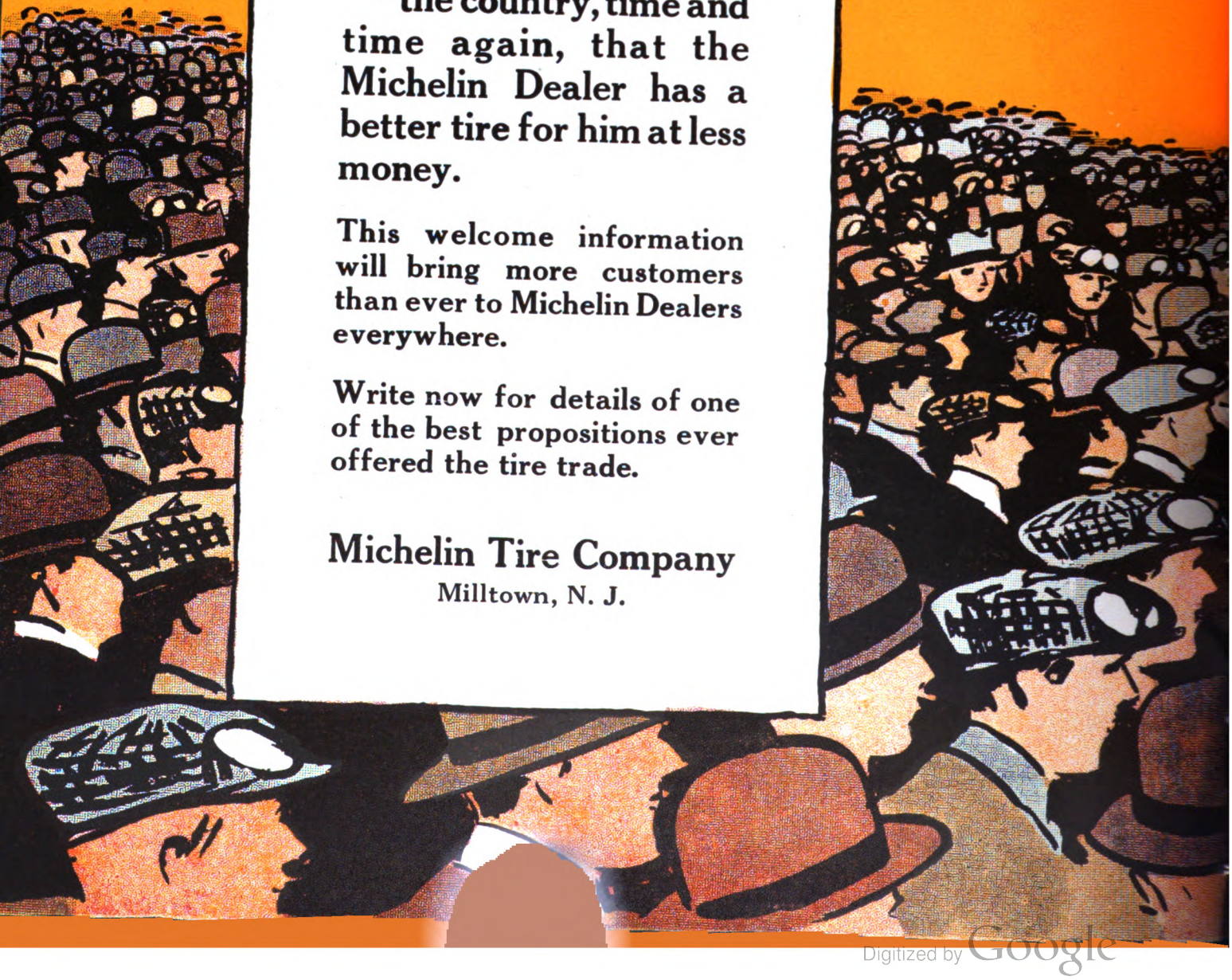
Number 4

IN 1918 Michelin will tell every tire user in the country, time and time again, that the Michelin Dealer has a better tire for him at less money.

This welcome information will bring more customers than ever to Michelin Dealers everywhere.

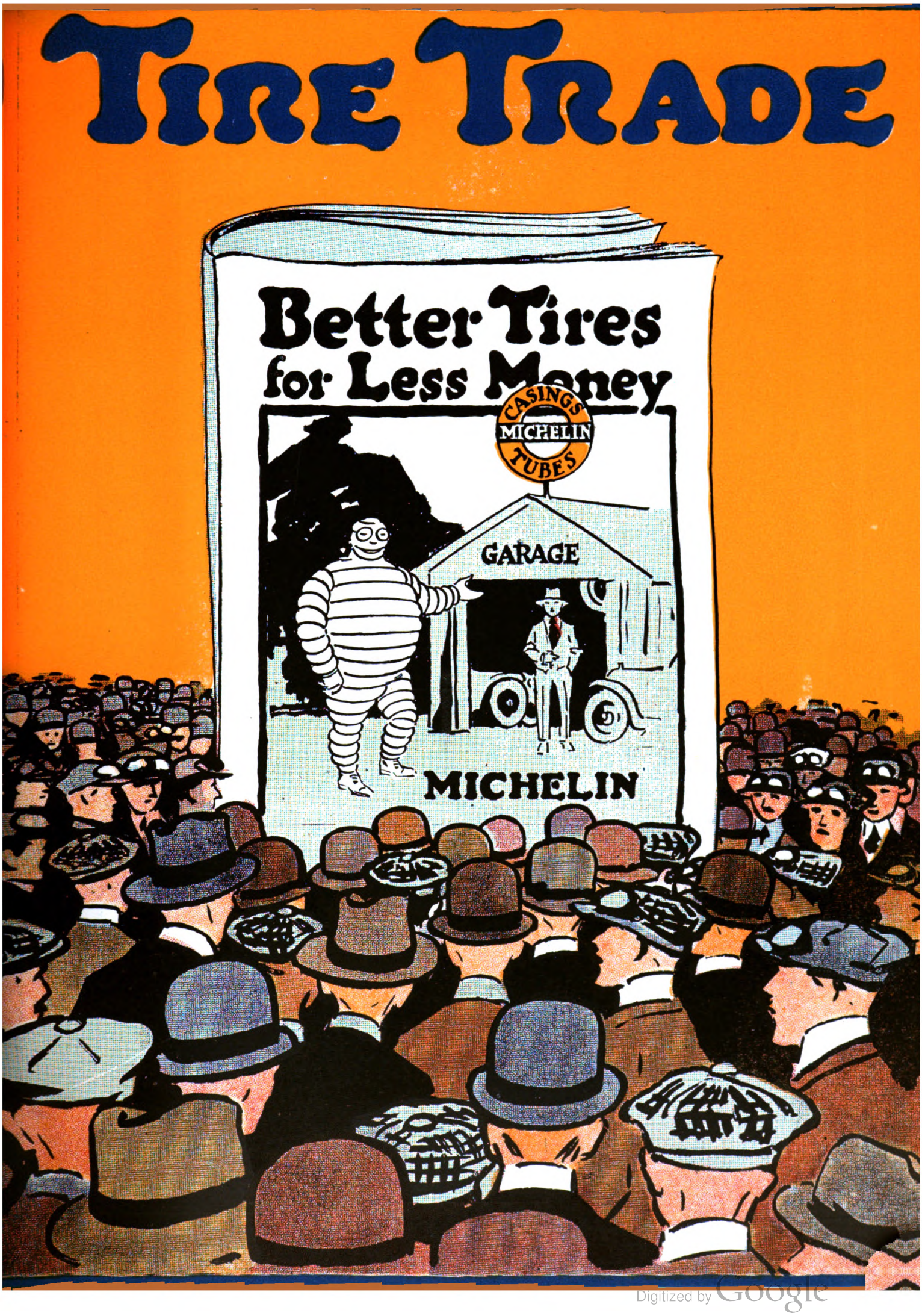
Write now for details of one of the best propositions ever offered the tire trade.

Michelin Tire Company
Milltown, N. J.



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TIRE TRADE



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None Could be Higher in Quality—
None More Moderate in Price.

Michelin Advertising

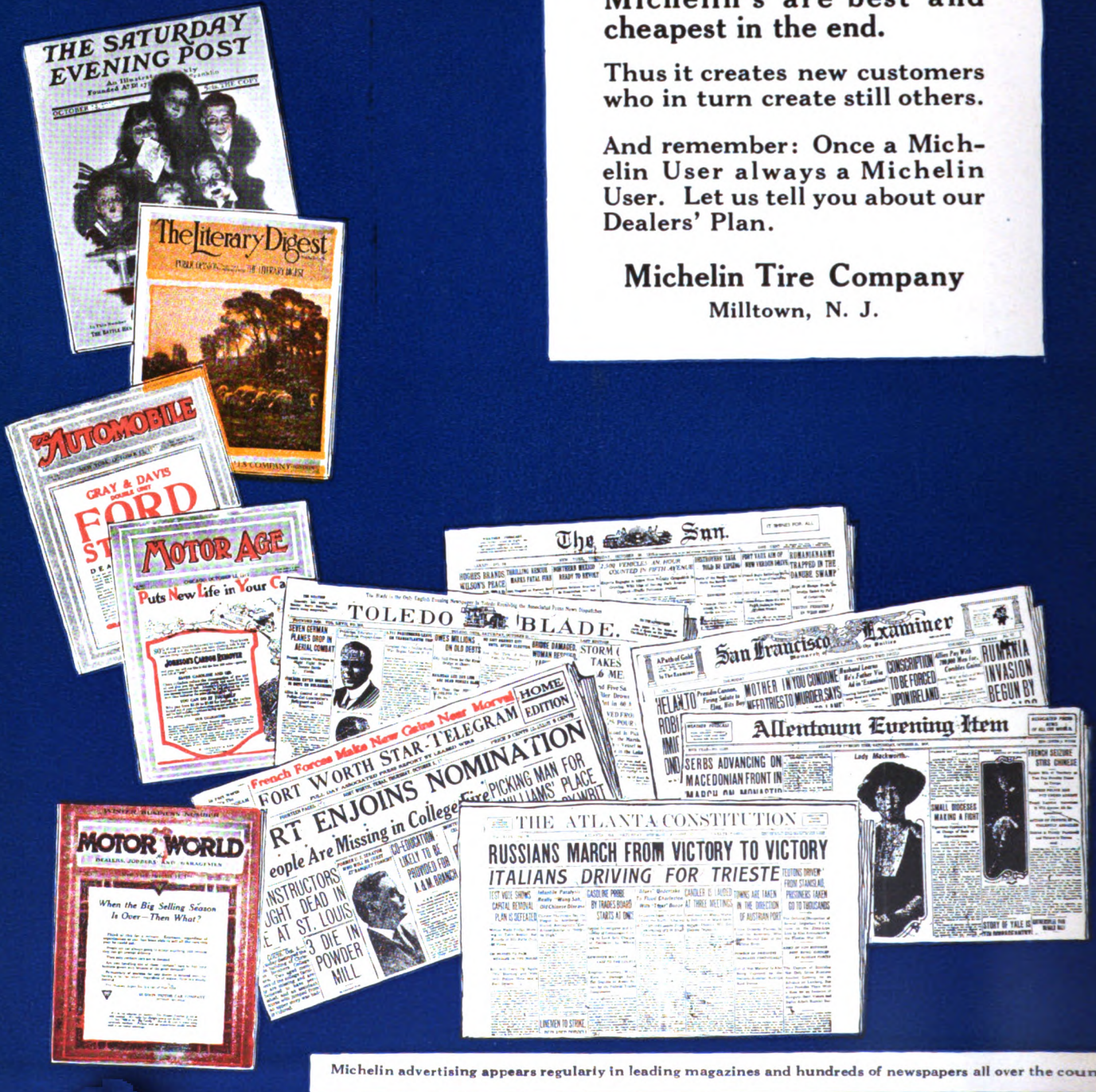
Is not mere publicity, but carries a real message about greater tire economy and satisfaction. It appears regularly, daily and weekly and monthly.

It gives actual facts that announce to the reader that Michelin's are best and cheapest in the end.

Thus it creates new customers who in turn create still others.

And remember: Once a Michelin User always a Michelin User. Let us tell you about our Dealers' Plan.

Michelin Tire Company
Milltown, N. J.



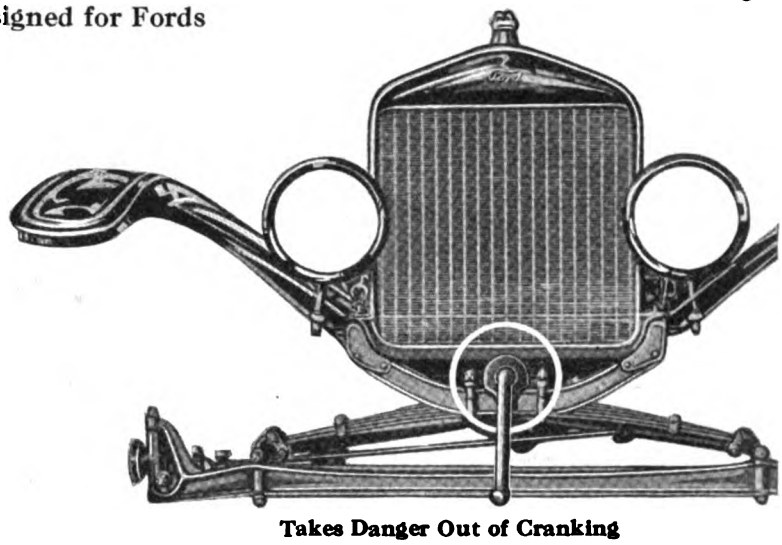
Michelin advertising appears regularly in leading magazines and hundreds of newspapers all over the country

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The Carson Kickless Crank

Especially designed for Fords

This is facsimile of page advertisement in the Saturday Evening Post, Jan. 12, 1918.



Takes Danger Out of Cranking

You can start your Ford with absolute Safety in any weather, and under any conditions with a

Carson Kickless Crank

$7.50 delivered



Patented Nov. 16, 1916

AGENTS WANTED

Territory open to exclusive agents. Quick sales and good profits. Write us for proposition and territory.

With this new crank on your car, you can safely advance your spark and get quicker firing, no matter if your motor is cold.

If your motor back-fires it makes no difference, because the Carson Kickless Crank removes all danger of injury.

It is impossible to be "kicked" by the crank handle if your car is equipped with this new crank.

The Carson Kickless Crank, in case of back-fire, is automatically and instantaneously disconnected from the crank shaft.

Danger of Injury Eliminated

This new crank in no way tampers with the engine, and in no way alters the construction of your car. It is the regular Ford crank made automatically kickless by our patented device.

A few minutes only are required to install the Carson Kickless Crank. It reaches you complete, with full instructions for installation.

These features make it the most valuable improvement yet offered to the Ford automobile.

SAFETY—Advance your spark fully and fearlessly; connect crank handle by customary pressure; crank your car as usual, and your motor starts without danger from back-fire.

SIMPLICITY—The mechanism of the Carson Kickless Crank consists of three parts of case-hardened steel. There is nothing to get out of order. It is practically indestructible.

SERVICE—In addition to eliminating all danger from back-fire, the Carson Kickless Crank is ready to start your motor more quickly and safely under all conditions because you can get quicker firing.

SATISFACTION—The safety assured, the quicker starting made possible, the ease of operation, and the sturdy mechanical construction, combine to make the Carson Kickless Crank give the utmost satisfaction.

The price, delivered anywhere in the United States, is $7.50. If your nearest dealer has not yet stocked, mail coupon below and we will send crank by express, prepaid.

Coupon—Tear Out, Fill In and MAIL Today

Carson Manufacturing Co.,
Mutual Bldg., Richmond, Va.
Enclosed find $7.50 for a Carson Kickless Crank which I purchase under your guaranty of satisfaction or money back.

Name .....

.....

Street Address .....

.....

City and State.....

.....

DEALERS:

Wire for Carson Kickless Cranks if you have not ordered. A simple demonstration proves absolutely convincing. Dealers throughout the United States are ordering from 12 to 100 at start. Selling on sight to majority of Ford owners. Circular gives full details and particulars. Write or wire for Carson Kickless Cranks.

EFFICIENCY GUARANTY:

If for any reason, after ten days' trial, a purchaser is not satisfied, the purchase price will be promptly refunded in cash, and carrying charges both ways paid by the manufacturer.

The Carson Manufacturing Corporation, Mutual Building, Richmond, Virginia

Worth Ten Times Its Cost To Fathers or Husbands Who Fear to Have Women Folks Crank the Ford

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GETTING ACQUAINTED WITH AMAZON

THE CARCASS OF THE TIRE

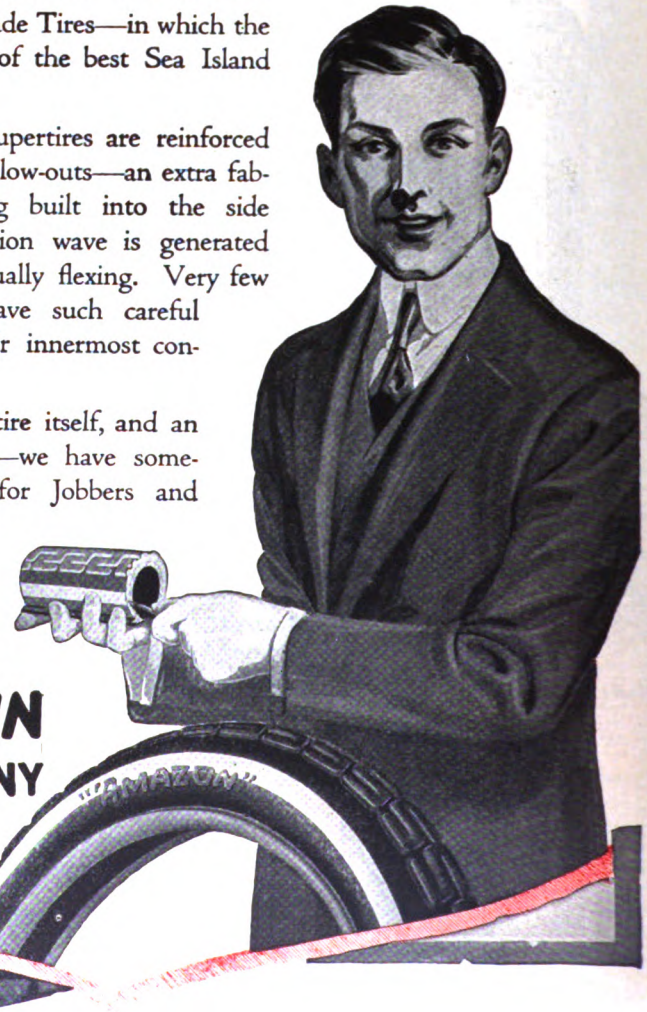
The foundation of any Tire is the Carcass—the frame-work on which the Tire is built.

Amazons are Hand-Made Tires—in which the Carcass is constructed of the best Sea Island fabric obtainable.

Then, too, Amazon Supertires are reinforced for protection against blow-outs—an extra fabric breaker strip being built into the side walls, where the traction wave is generated and the tire is continually flexing. Very few tires of any make, have such careful attention given to their innermost construction.

Taken all in all—the tire itself, and an interesting proposition—we have something very attractive for Jobbers and Dealers to whom Amazons may appeal. Get in touch with us.

(Third Ad of a Series)



THE AMAZON RUBBER COMPANY

AKRON, OHIO

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You have *visualized* the new car?—type, looks, refinements and all? Your picture has its actual counterpart—among

The New

1918 MOON Cars

Six-45
7-pass. Touring and Club Roadster
$1685
f. o. b. St. Louis

Six-66
7-pass. Touring and Club Roadster
$1850
f. o. b. St. Louis

See these cars for superbly finished exteriors in which the "air" that goes with harmony has been attained; examine them for all that is most comfortable and modish in appointments—and those underlying mechanical perfections that can be depended upon to *do* right up to *out-do* standards.

Your motor car pre-conception is here—realized in the new Moon club roadster, cabriolet, touring car, coupe, sedan or victoria—and at a saving of about one-third the cost.

The New Moon Six-36

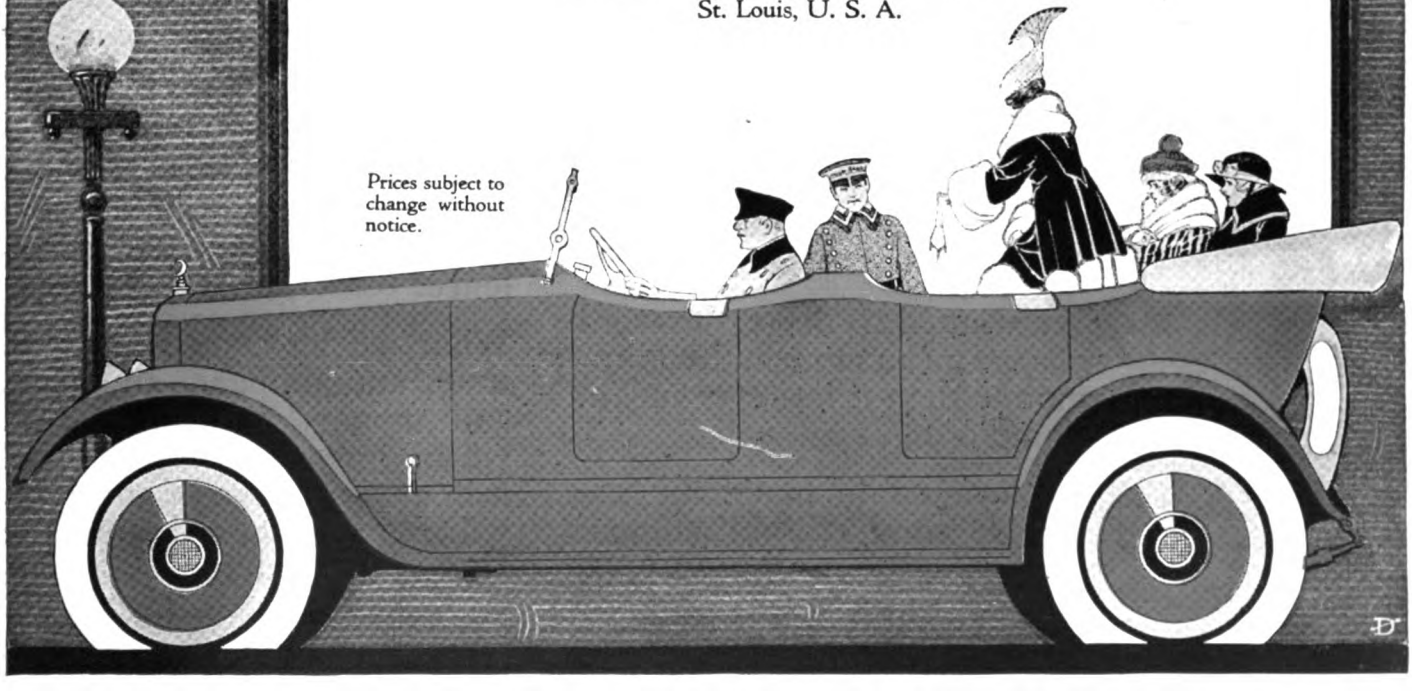
—the tremendously successful recent addition to the Moon Line—a light Six of the ultra-smart Moon appearance, velvety smooth way of running and characteristic ruggedness.

114-inch wheelbase — double cowl and long real honeycomb Fedder radiator, both stylishly extra high—slanting windshield —beautifully finished solid walnut instrument board, front and rear — Spicer joints — Timken bearings. And a car that goes easy on tires and the contents of the gasoline tank—emancipation for the man with the prospect of a "quantity" Four staring him in the face. The recent big addition to our factory is an example of equipment rather than foresight. Increasing popularity of Moon cars has been rapid and steady — and prompt deliveries for the coming certain-to-be record Moon season meant a 10,000-car increase in our facilities. A choice piece of territory here and there is still open.

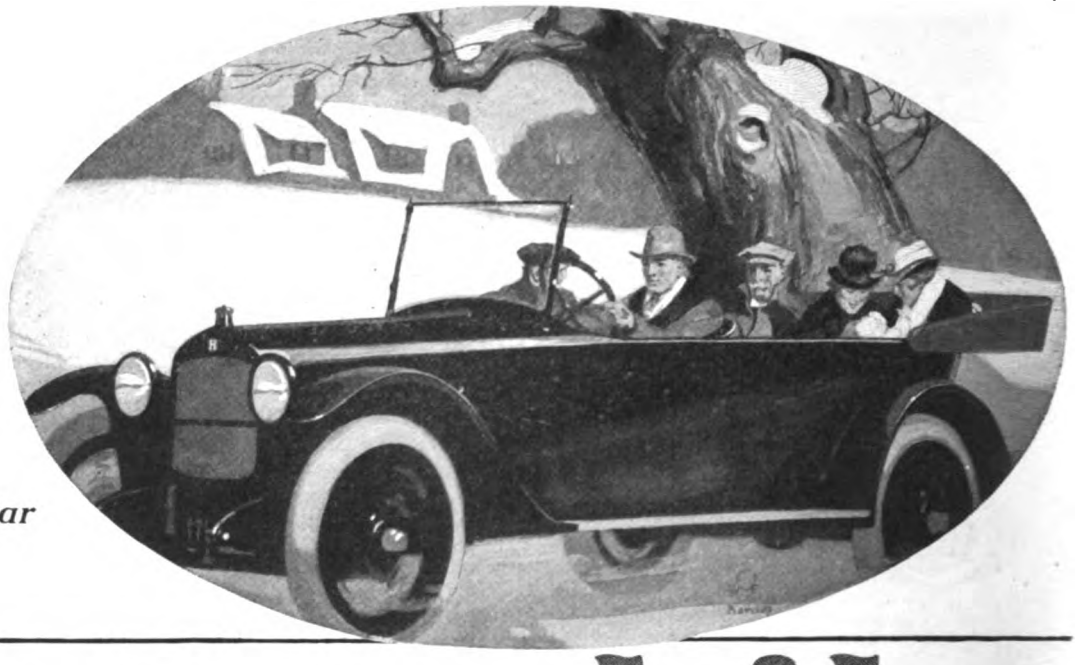
$1195
f. o. b. St. Louis

MOON MOTOR CAR COMPANY
St. Louis, U. S. A.

Prices subject to change without notice.



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The Comfort Car

Ⓗ

Hupmobile

THE new Hupmobile has probably reached your town by this time.

If you inquire, we think you will find that it has had a wonderfully warm welcome.

We think we can almost tell you what your home folks are saying and thinking.

They are sure to speak especially of the beauty and the *comfort* of the new car.

For nearly eighteen months we have been building and designing to that end.

We wanted to make the word *comfort* mean more in this Hupmobile than it has ever meant in motoring.

We wanted to make the car *suggest* comfort the moment you looked at it.

We wanted to make you *feel* this uncommon comfort the moment you took the wheel.

We wanted to make it worthy of being called the Comfort Car as well as the Beauty Car and the Car of the American Family.

How far we have succeeded we would rather have you say than to say it ourselves.

We have tried to retain all the excellence of all the Hupmobiles that have gone before; and add new and greater excellence.

What we have put into it in time, and thought, and care, and money, and experience, we are sure you will get out of it in comfort of *mind* and *body*, which will make driving the Hupmobile a delight.

HUPP MOTOR CAR CORPORATION, DETROIT, MICH.

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Stops Ford chatter grab and slip

That noisy chat-t-er-ing when you work the Ford brake is more than a nuisance. It means hard, slippery brake linings—waste motion—lost "pull"—car ruining vibration.

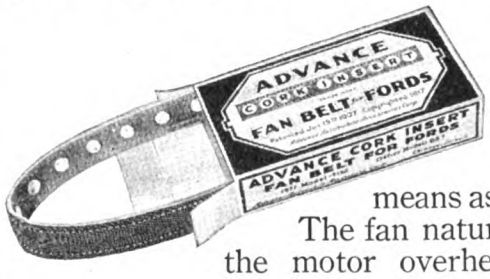
ADVANCE CORK INSERT

TRADE MARK REG COPYRIGHTED 1917

TRANSMISSION LININGS FOR FORDS

stop the chattering because they stop the grab and slip. The buttons of cork never become smooth or hard. Both corks and fabric wear very slowly. One set outwears three sets of ordinary linings.

Cork Insert Transmission Linings make the Ford brake ***brake***—make the car "pull" better and haul heavier truck loads—get ***instant action*** in response to a mere touch to the pedals—give "pep" in the get-away, put positive action in the brake.



Stops Fan Belt Slipping

The ordinary Ford fan belt soon gets "slippery as an eel." That means as high as 25% to 50% lost power. The fan naturally doesn't fan as it should—the motor overheats because it isn't properly fanned—and there's trouble to pay. ***Most*** motor trouble, in fact, results from overheating.

Cork Insert Products
will be exhibited at the
New York Show, Space D-3

Cork Insert Fan Belt stops slipping throughout its long service. The buttons of cork hold their ability to grip—not affected by water, oil, grease or dirt. Better service, longer wear, greater economy.

PRICES

Cork Insert Transmission Linings $3 per set of 3

Cork Insert Fan Belts, $1 for 1917 Fords, 85c for preceding models

DEALERS Order Cork Inserts from your jobber. Cork Inserts are one of the biggest successes of the year in the trade. Every Ford has to have transmission linings and fan belts. Cork Inserts do the work better—last longer—save money. They are strongly advertised. They certainly do *move* and keep profits rolling in.

Advance Automobile Accessories Corp.
Dept. L13-1, 56 E. Randolph St.
Chicago, Illinois

Dealer's Coupon Check and mail today

ADVANCE AUTOMOBILE ACCESSORIES CORP.
Dept. L13-1, 56 E. Randolph St., Chicago.

- ☐ Send one dozen sets of Advance Cork Insert Transmission Linings for Fords.
- ☐ Send one dozen Advance Cork Insert Fan Belts, 1917 Ford.
- ☐ Send one dozen Advance Cork Insert Fan Belts, 1916 or earlier model Ford.

(Regular dealer discounts to apply)

Name .....

City ..... State .....

Jobber's Name .....

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GOODELL-PRATT

1500 GOOD TOOLS

SATISFACTION IN EVERY TOOL



A dealer recently wrote us, "There is satisfaction in selling Goodell-Pratt Tools whether to friend or stranger, as he always comes back to buy more tools, but never to complain."

There is money in Tools for the dealer, especially the dealer who handles the Goodell-Pratt line. Men who pay thousands of dollars for good automobiles will not try to save pennies in buying tools to keep it in repair.

This is the biggest year yet for Goodell-Pratt Tools and there is more push than ever in the advertising back of them.

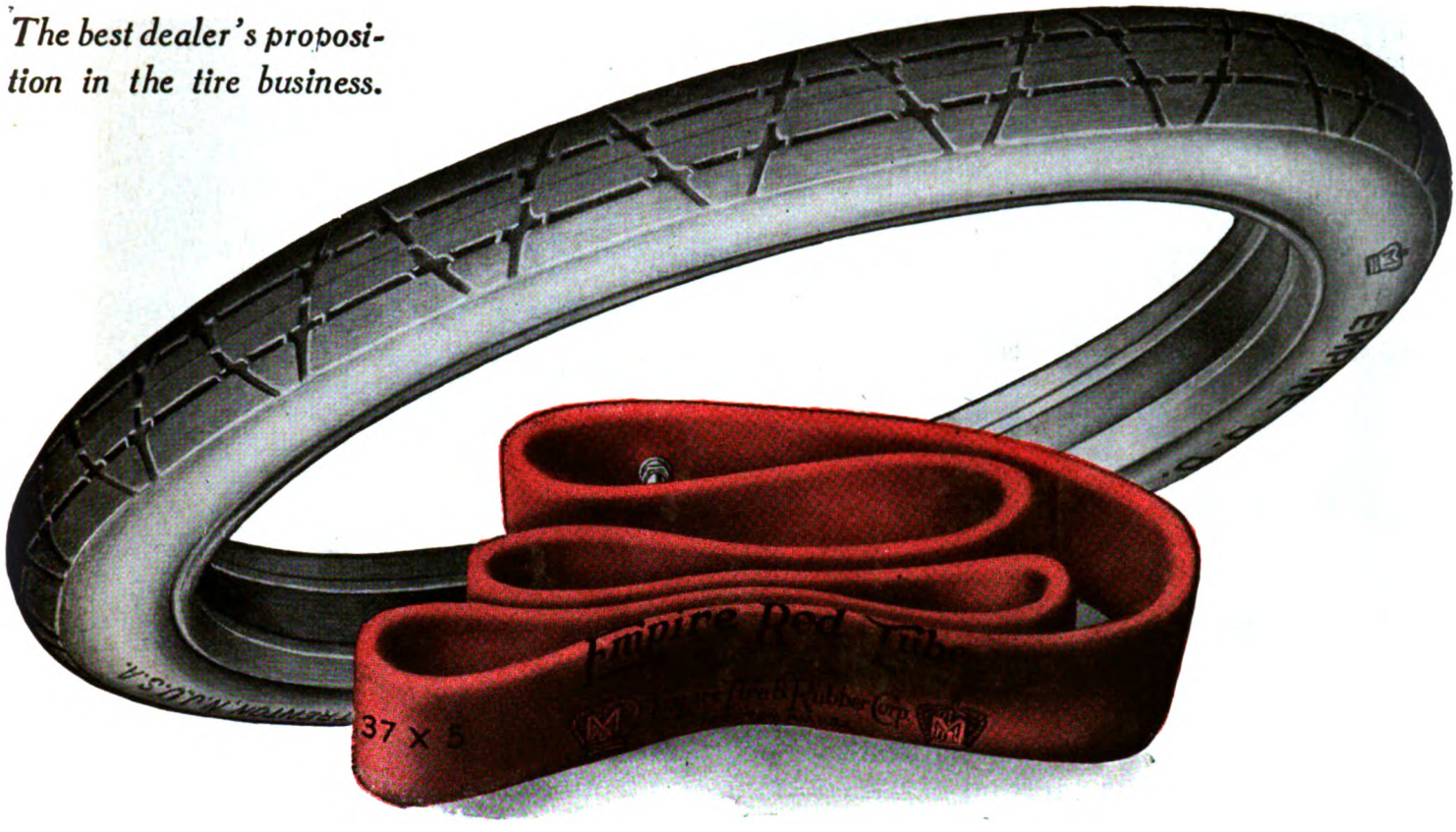
Goodell-Pratt Company

Makers of Mr. Punch — *Toolsmiths* — Makers of Mr. Punch

Greenfield, Mass., U. S. A.

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The best dealer's proposition in the tire business.



The tire is as good as the tube
The tube is as good as the tire

For 10 years Empire Red Tubes have been recognized by the trade and car owners as the best on the market. They have come to be called "the tubes that outlive the car itself."

And Empire Casings have won the same high standing. Actual records prove that the ***average*** Empire, in ***average*** running, will deliver thousands of ***extra miles.***

The same fine materials, the same painstaking workmanship, the same secret processes which for 30 years have made the name Empire famous for long life in rubber goods of all kinds, account for the surplus quality of every Empire tire product.

For dealers the Empire proposition is the best in the field.

The margin of profit is the fairest. The sales are increasing the fastest.

And the advertising is wide-spread, powerful and unique. Our full pages in The Saturday Evening Post, The Literary Digest and elsewhere are signed, not with our own name, but as follows: "The Empire Tire Dealer."

Thus we centre the consumer's attention, not on our factory, but on your store, in his own home town.

Empire advertising thus becomes your own advertising, addressed to the car owners of your own locality.

Write for our proposition today.

THE EMPIRE RUBBER & TIRE COMPANY
TRENTON, N. J.

Empire Tires

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It's easy to sell. Every dealer knows the rapidly increasing demand for this handy and inexpensive method of overcoming tire trouble. Every tire owner needs and wants one of these. No car is sold supplied with a tire saving device.

SHALER

Tire Repair Kits

For Motorists to Carry in Their Tool Boxes

Each sale gives you a liberal profit on the kit itself and besides gives you a continuous permanent profit on the sale of repair material and supplies that the motorist must buy from time to time for use on the road.

Increased tire prices increase every motorist's need for a Shaler Tire Repair Kit to reduce tire expense. Some dealer is going to make the sales. That dealer can be YOU.

The Shaler is advertised regularly throughout the season in the Saturday Evening Post and more than fifty other magazines. Motor car owners know the Shaler and call for it by name.



Write on Your Letterhead for Catalog and Dealer's Prices

Write today for complete catalog of Shaler Tire Repair Kits—Dealers' Discounts and full information about Dealer's Helps that we furnish, including Counter Stands—Posters—Wall Hangers—Window Displays—Booklets—Circulars—Signs and Window Cards.

C. A. SHALER COMPANY

447 Fourth Street, Waupun, Wisconsin

Oldest and Largest Manufacturers of a Complete Line of Vulcanizers for Motorists and Repair Shops

When writing advertisers please mention Motor World—It identifies you

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DISTEEL WHEELS

DISTEEL WHEELS have become definitely established in the favor of a class of motor car buyers whose approval is an important factor in determining sales possibilities.

The spokeless wheel idea which had its inception in Europe, has attained extraordinary popularity abroad, particularly among the owners of high priced cars. That this type of wheel is steadily gaining in favor in America is evidenced by the increasing number of costly passenger automobiles having Disteel Wheel equipment, or spoked wheels concealed by metal discs.



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The Advantages of Disteel Wheels

SUMMARIZED briefly, the advantages of Disteel Wheels are—tires or wheels can be mounted or demounted with least effort; weight centered at hub, eliminating fly-wheel action of heavy rims; wheels always run true; easier to keep clean; do not "cage" mud and snow; can be repaired at trifling cost in case of bending due to bad skid; absorb heat and keep tires cool; can never become "squeaky" because expansion and contraction of metal is uniform; up to 20 per cent lighter than wood wheels having same load capacity.

DISTEEL WHEELS

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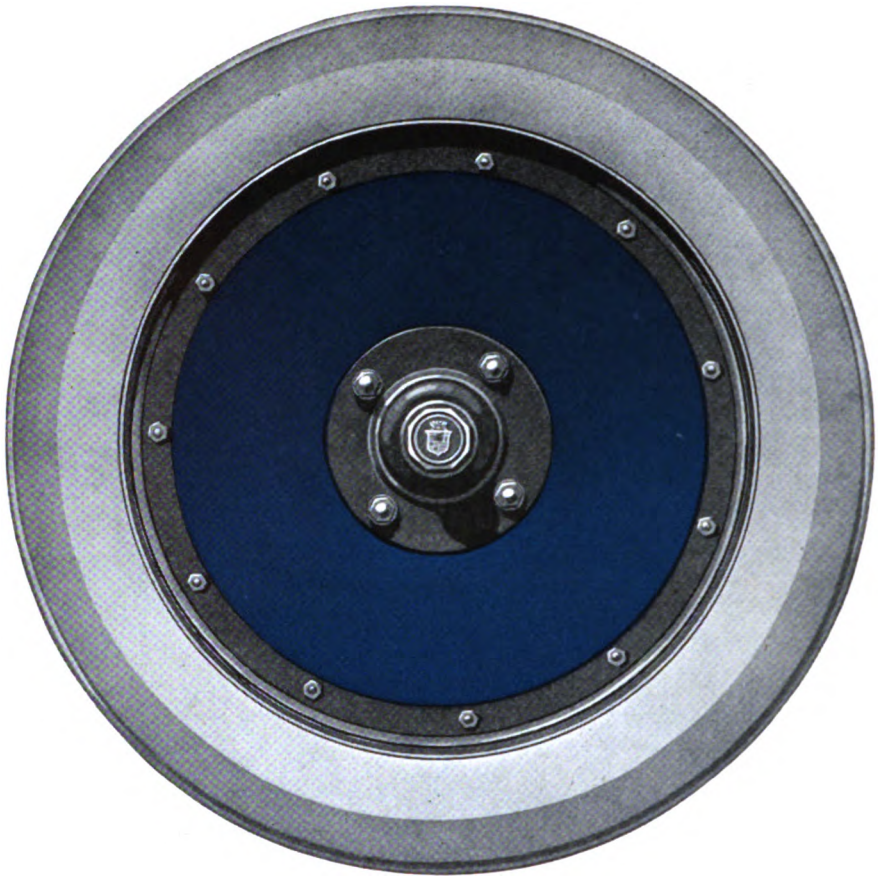


And the Factor of Appearance

DISTEEL wheel equipment is infinitely more in harmony with the sweeping lines and plane surfaces that are characteristic of the smartest passenger cars, besides making possible more pleasing color effects in finishing. Not the least of the functions of Disteel Wheels is that of concealing brake rods, springs, and other under-body equipment, unsightly enough in itself and almost impossible to keep clean. Careful consideration of the accompanying illustrations will make clearer the distinctiveness and harmony of Disteel-equipped cars.

DISTEEL WHEELS

Digitized by Google



An Opportunity for Quality Car Dealers

THE mechanical advantages, reduced car-upkeep costs, and the fact that they give added distinction to a motor car, are factors that are rapidly creating a big demand for Disteel Wheels among discriminating owners.

We are prepared to make early deliveries of Disteel Wheels for cars in the medium and high price classes, and have an attractive proposition to dealers selling these cars.

Our special introductory offer together with our proposition to dealers and the de Luxe Disteel catalog will be sent on request.

DETROIT PRESSED STEEL COMPANY

DETROIT, U. S. A.

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GURNEY BALL BEARINGS

An Established Fact

One ball in the Gurney raceway will carry as great a load as twenty-six balls will carry on a flat surface.

GURNEY BALL BEARINGS are designed with a contour slightly larger than ball itself—this increases the load capacity of ball, as one ball rolling in a raceway of close and accurate contour will carry the load of 26 balls running on flat surface.

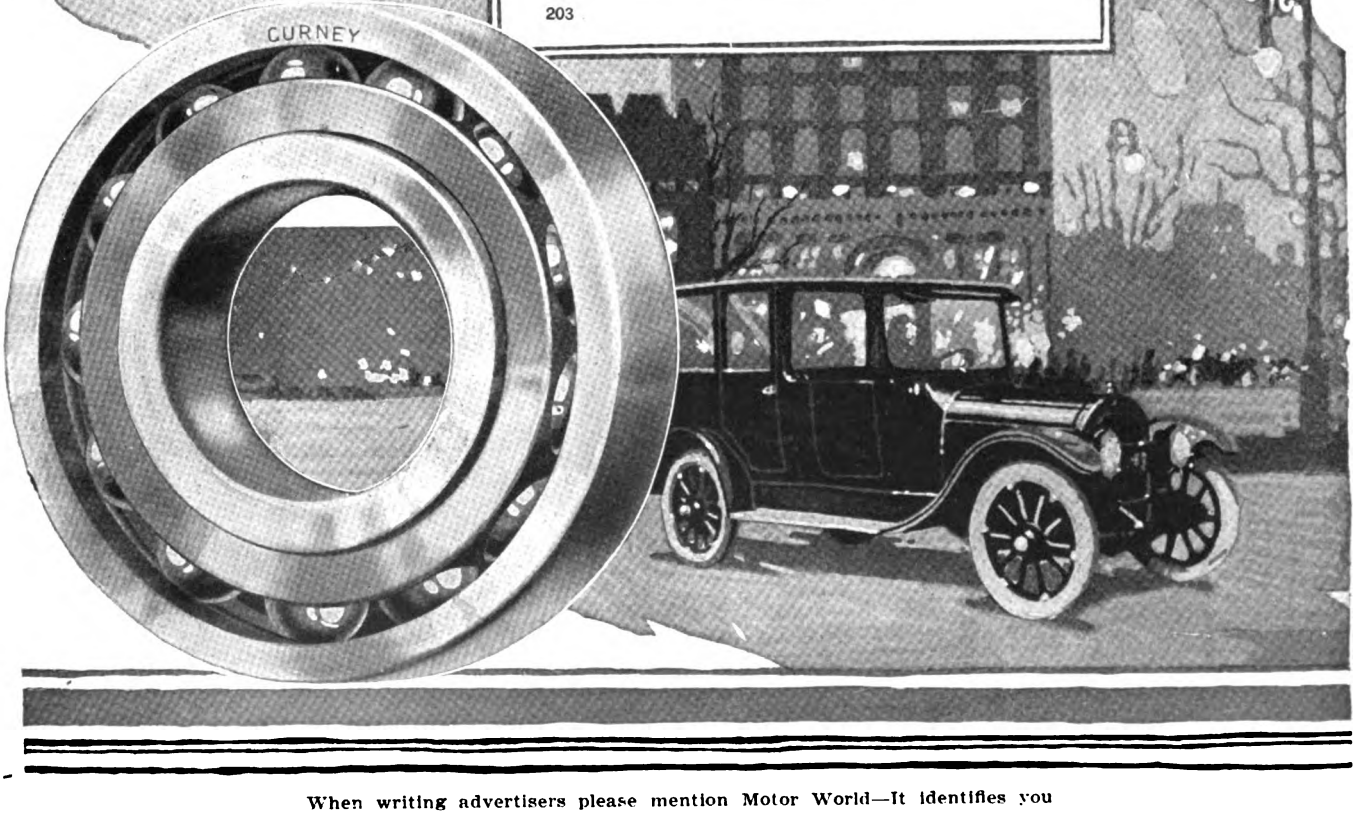
Besides the method of assembling GURNEY BALL BEARINGS permits **more** balls and **larger** balls.

We have an interesting series of bulletins which show different ball bearing applications. Write today.

GURNEY BALL BEARING CO.

Conrad Patent Licensee
Jamestown, N. Y.

203



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A POSTAL BRINGS:

Sample Advertisements, Three Booklets on How to Run a Motor Goods Department, Catalog, etc.

"CHASE ROBES

are Advertised Everywhere"

Everyone is saying this now, during our successful consumers' campaign. The following magazines all had full-page "ads" on Chase Plush Robes:

SATURDAY EVENING POST, COSMOPOLITAN, LITERARY DIGEST, LIFE, WOMAN'S HOME COMPANION, VOGUE, RED BOOK, GOOD HOUSEKEEPING, AMERICAN MAGAZINE, POPULAR SCIENCE, POPULAR MECHANICS, MOTOR, MOTOR LIFE, THEATRE, and others.

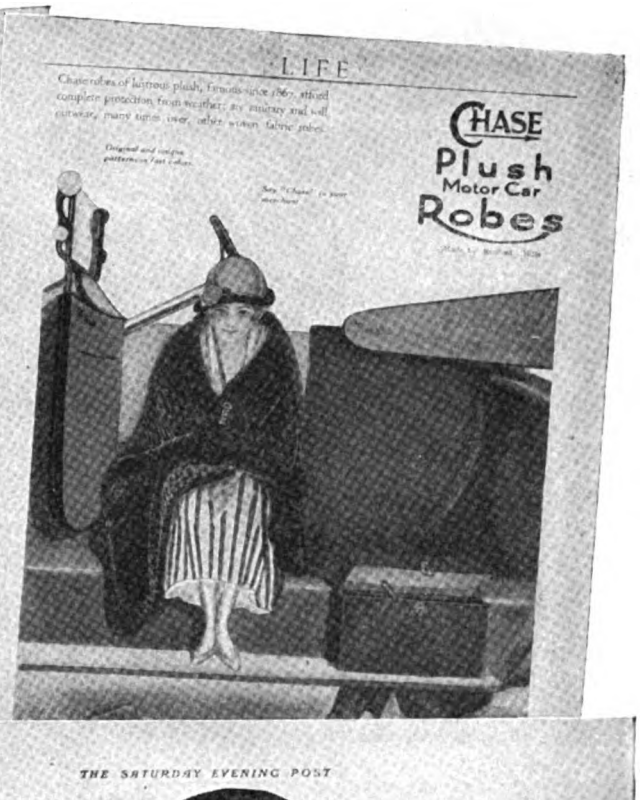
Get in line to meet the demand! This advertising is increasing the sales of Chase Robes and our future advertising will bring even larger sales.

AT YOUR JOBBER'S, OR WRITE

L. C. CHASE &
NEW YORK
LEADERS IN MANUF

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CHASE ROBES

are Widely Advertised

The coming year will see similar broadcast advertising and also *additional drives* in such periodicals as:

CHRISTIAN HERALD, COUNTRY GENTLEMAN, RURAL NEW YORKER, NEW ENGLAND HOMESTEAD, AMERICAN AGRICULTURIST, WALLACE'S FARMER, ORANGE JUDD FARMER, BREEDER'S GAZETTE, KIMBALL'S DAIRY FARMER, FARMER'S WIFE, and other farm papers.

NO MATTER HOW MUCH ADVERTISING IS DONE, GOODS WILL REMAIN UNSOLD IF NOT WORTHY. CHASE ROBES *SELL!*

AT YOUR JOBBER'S, OR WRITE

CO., BOSTON
CHICAGO
ACTURING SINCE 1847



REALIZE THAT—

Chase Robes were never better and that robes were never more in demand. Buy right!—sell right!

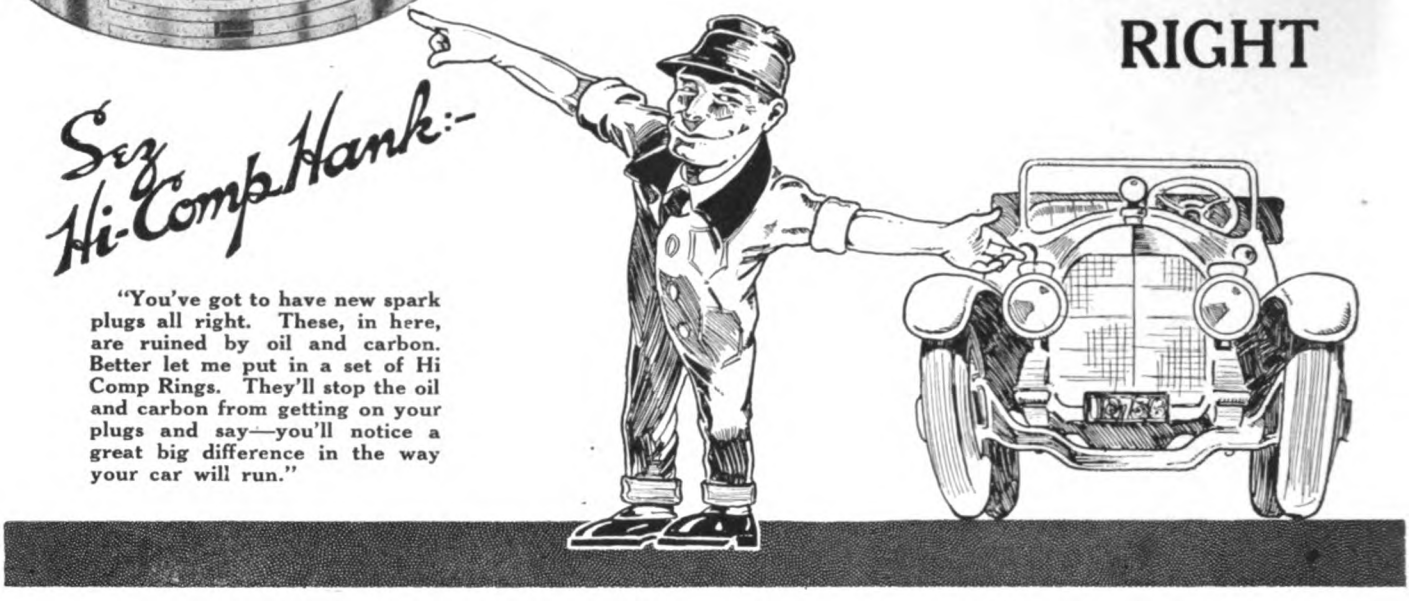
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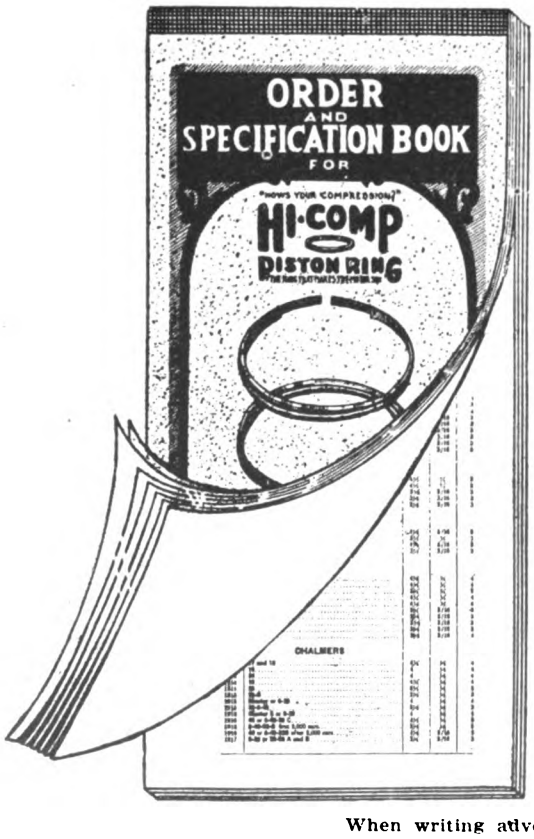
HI-COMP RINGS ARE RIGHT

Sez Hi-Comp Hank:-

"You've got to have new spark plugs all right. These, in here, are ruined by oil and carbon. Better let me put in a set of Hi Comp Rings. They'll stop the oil and carbon from getting on your plugs and say—you'll notice a great big difference in the way your car will run."

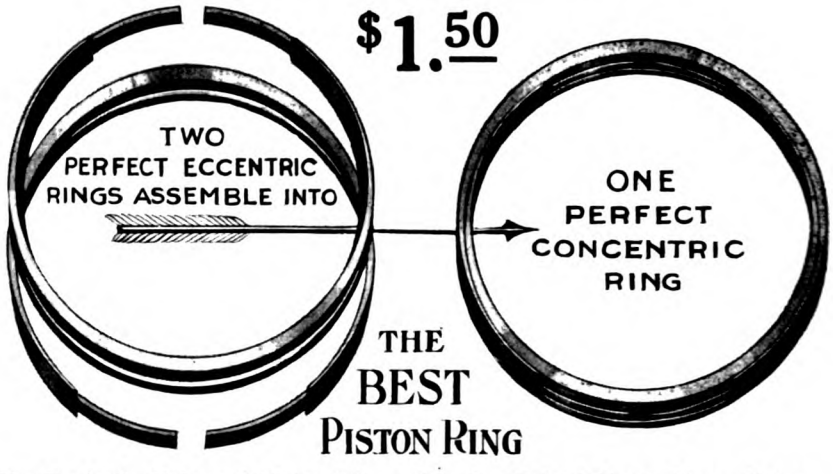


Send for Hi-Comp Hank's Order and Specification Book



HI-COMP PISTON RING
"THE RING THAT MAKES THE MOTOR SING"

$1.50

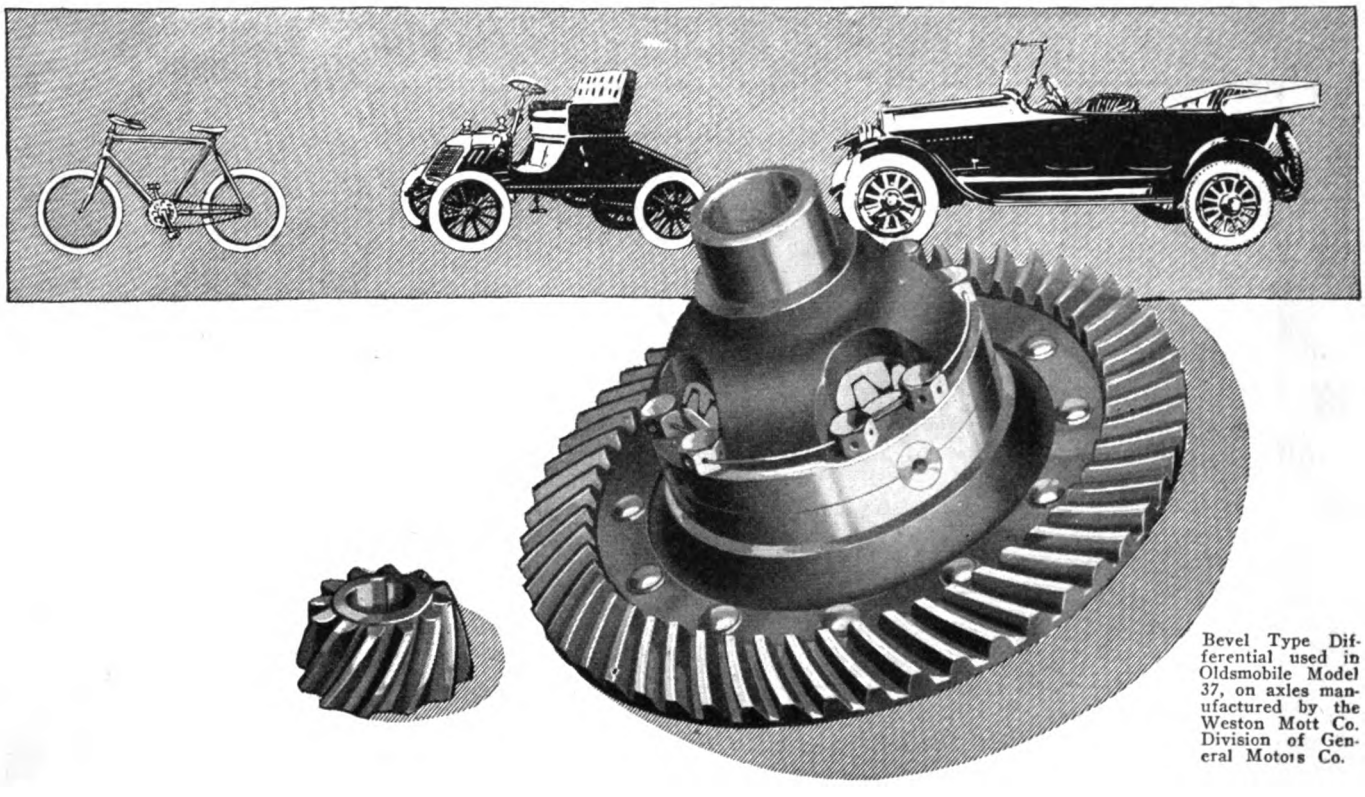


THE BEST PISTON RING

The Perfectly Balanced Piston Ring. The One-Priced Piston Ring. Puts Power and Pep in the motor, saves gasoline and oil. The perfect compression attained by the Hi-Comp Ring increases efficiency of carburetor and of starting system; prevents oil and soot from fouling spark plugs; prevents formation of carbon. Send for "Order and Specification Book," which lists sizes for all cars. Principal jobbers carry Hi-Comps in stock.

CONTINENTAL PISTON RING CO.
MEMPHIS . . . . TENN.

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Bevel Type Differential used in Oldsmobile Model 37, on axles manufactured by the Weston Mott Co. Division of General Motors Co.

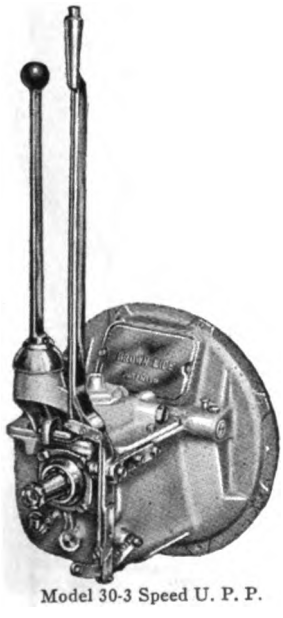
—up from the old bicycle days—

Our ability in the art of making gears is born of experience that started before the beginning of the Automobile Industry. In fact, we "fussed" with gear making in the old bicycle days. With the years we've been in the business, we have accumulated useful information about gears and gear making that we are able to make of especial value to our patrons.

BROWN-LIPE-CHAPIN

DIFFERENTIALS

"The name synonymous with the beginning of the Automobile Industry"



Model 30-3 Speed U. P. P.

To-day over 80% of the prominent automobile and commercial car manufacturers use as standard equipment either one or both BROWN-LIPE Transmissions and BROWN-LIPE-CHAPIN Differentials.

Our Engineering Departments will assist in solving your transmission and differential problems. Write us today.

BROWN-LIPE GEAR CO.
TRANSMISSIONS

BROWN-LIPE-CHAPIN CO.
DIFFERENTIALS

Syracuse, N. Y.

REPRESENTATIVES:

New York: Thos. J. Wetzel, 29 West 42d St. San Francisco: A. H. Coates, 444 Market St.
Foreign Agent: Benjamin Whittaker, 2 Norfolk St., Strand, London, W. C.

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FAIR LIST PRICES FAIR TREATMENT

The New Horseshoe Above the Door

GOODRICH TIRES

Where You See This Sign Goodrich Tires are Stocked

BUT the Goodrich Dealer's Sign is the *sign* of the good *fortune* of *good business, not* of *luck.*

Unlike the old horseshoe, its good fortune is founded on *solid business sense*—Goodrich *marketing policies.*

It is a trade magnet because every tire user knows that where he sees that sign he takes no risk either with the dealer or the tire he buys.

He knows that Goodrich Fair Treatment stands behind the Goodrich Dealer's Sign ready to make good to him anything the tire may not.

This new "horseshoe" of good business is magnetized with pulling power of Goodrich's great *prestige* as the world's greatest and oldest rubber maker.

It is magnetized with the Goodrich *reputation,* which means quality of tires and good faith of guarantee, wherever rubber is known.

Sister sign of the Goodrich Guide Post which points the right way to a nation of automobilists, its friendly, familiar face welcomes every motoring tourist who passes your door.

Enlist all these forces and the great selling force of Goodrich's nation-wide advertising campaign—national monthlies and weeklies, the metropolitan dailies and your city press—

BY HAVING A GOODRICH DEALER'S SIGN OUTSIDE YOUR STORE SELLING FOR YOU.

GOODRICH

SILVERTOWN CORD TIRES SAFETY TREAD FABRIC

Goodrich Brown Tubes and Gray Tubes

The B. F. GOODRICH COMPANY Akron, Ohio

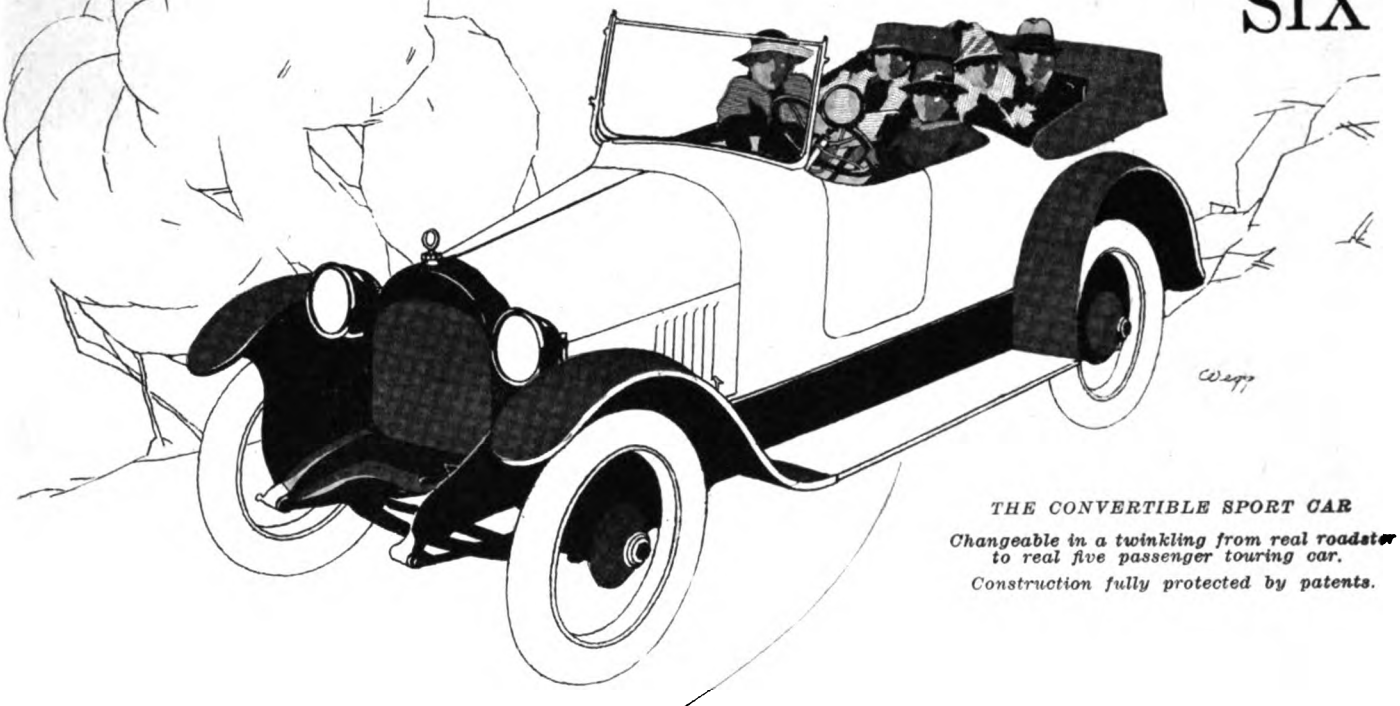
BEST IN THE LONG RUN

When writing advertisers please mention Motor World—It identifies you

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ANDERSON

SIX



THE CONVERTIBLE SPORT CAR

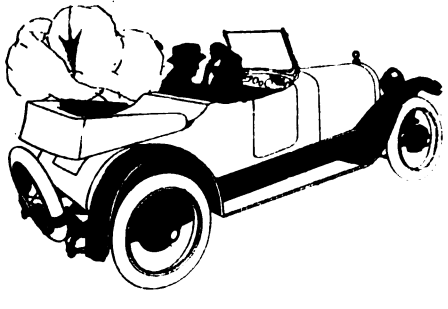
Changeable in a twinkling from real roadster to real five passenger touring car.

Construction fully protected by patents.

TOURING CAR *and* ROADSTER

—Both in *One* Model

The finish of all Anderson Cars is hand applied and hand rubbed, insuring the same deep and lasting lustre that is given the finest types of custom built cars. The upholstery is form fitting of real curled hair, over a bed of fine coiled springs, tailored in real leather French pleated.



THE owner of a Convertible Sport Car is, in fact, the owner of TWO cars.

He is the owner of a powerful looking, low hung Roadster just big enough for two.

He is likewise the owner of a roomy Touring Car that will comfortably accommodate five without the slightest crowding or cramping.

The change from one model to the other can be made in a twinkling, whenever you wish, and without the slightest trouble.

Automobile men pronounce it the greatest achievement of the year in body designing. Its exceptional utility and smart distinctiveness mark a new epoc in fine coach work designing.

The smart and original lines, the finely tailored leather upholstery, the rakish top, the lustrous finish, the pleasing rich color combinations, all stamp it a custom built car, *and it is.*

All Anderson bodies are designed and built in our own big body plant where we have specialized in the production of fine coach work for 28 years.

As for performance, it will do all the things the best stock "SIX" will do. The mechanical units are all of completely established excellence, everywhere known as the finest by motor wise men.

The motor is a Continental "SIX," a giant for power in a chassis as light as that of the ANDERSON. It will average 16 miles to a gallon of gasoline. It will travel from 2 to 55 miles an hour on high. It will ride easy at almost any speed. The wheel base is 120 inches, the rear springs are semi-elliptic and underslung *and 56 inches long.*

As regular equipment there is a BOYCE Motometer, a KELLOGG Engine Driven Tire Pump, a KLAXON Motor Driven warning signal, a HAWTHORNE "Old Sol" Spot Light, a UTILITY Combination heater and foot rest, Oil Gauge and Gasoline Gauge on the dash, One Man Semi-Victoria Top, quick inside attachable storm curtains.

Descriptive literature will be mailed on request.

ANDERSON MOTOR COMPANY, Rock Hill, S. C.

Foreign department, 8-10 Bridge St., New York City.

PRICES INCLUDE NEW WAR TAX

Convertible Sport Car	$1435	*Touring Cars, 5 pass., straight or divided front seats*	$1435
Springfield Type, Convertible Sedan	2165	*Victoria Top, extra*	150
Wire Wheels, 5 to a set, extra	110		

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A dependable combination

MP TRADE SERVICE

Westinghouse

STARTING AND LIGHTING SYSTEM FOR FORD CARS

The one starting and lighting system, the "come-back-proof" system—manufactured by a concern whose very name, because of what it stands for, is a sales maker.

Combined with this is the backing of MP Service, which gives the dealer and owner alike, unusual close personal services.

Send a post card for dealer discounts and full information.

MOTOR PARTS COMPANY

Sole Distributors for the Westinghouse Starting and Lighting System For Ford Cars

816 North Broad Street, Philadelphia, Pa.

BOSTON BUFFALO SPRINGFIELD

$85.00 Complete

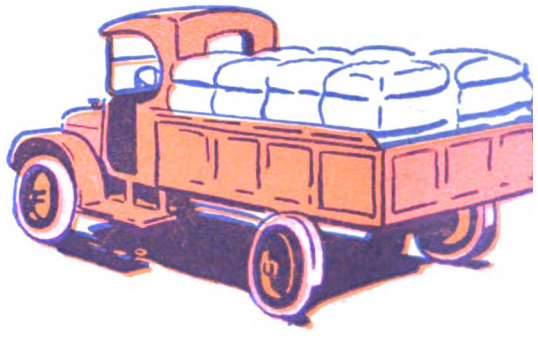
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internal gear axle shaft drive gives greater POWER

As originally designed the TRUXTUN Unit used a chain drive. But the manufacturers of the TRUXTUN Unit, along with the best engineering talent in this country, discovered that the chain drive was fundamentally wrong—that it was too wasteful of power. So they devised and patented the present internal gear axle, shaft drive.

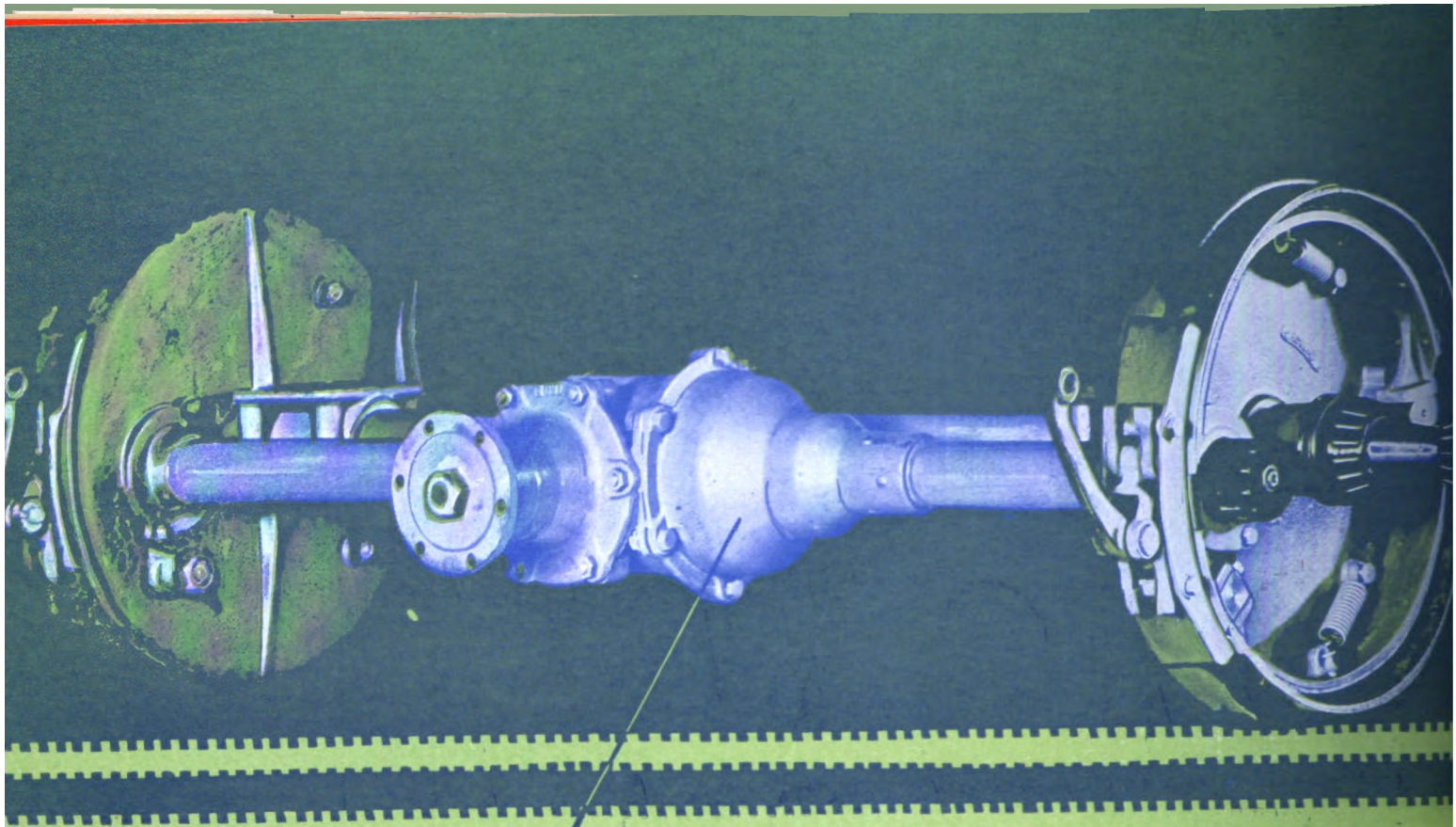
That they were right in abandoning the old style chain drive is amply proven by the fact that now 90% of all the highest-priced trucks operate by shaft drive. And as to the efficiency of the TRUXTUN gear it is only necessary to cite the high power and fuel economy everywhere evidenced by TRUXTUN trucks.

As an additional advantage, the TRUXTUN is equipped with a solid forged nickel-steel axle, which gives it much greater strength and durability than the built-up, cast and bolted housings used on many moderate-priced trucks.



TRUXTUN

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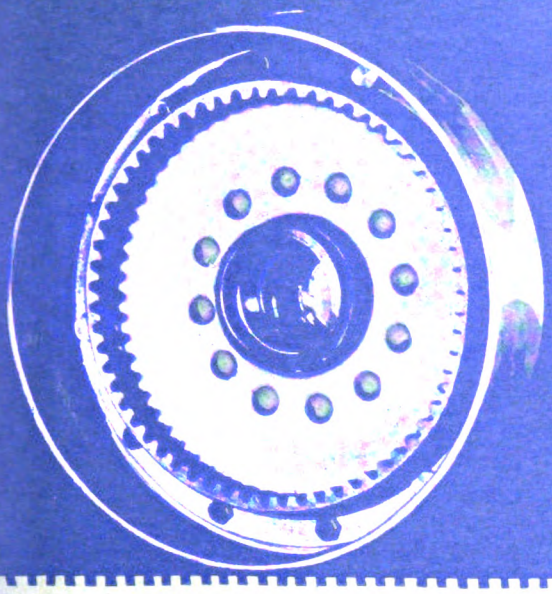
HEAVY DUTY INTERNAL GEAR REAR AXLE FOR TRUCK SERVICE

In a TRUXTUN-ized truck, 90% of the load is carried on the rear axle and frame which constitute the TRUXTUN Unit—the front of the *Ford* car, which is the only part that remains intact, carries practically no more weight than it would as a *Ford* touring car.

EXTRA OUTSIDE CHANNEL PRESSED STEEL FRAME

TUBULAR PROPELLER SHAFT WITH EXTRA JOINT

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NOT a chain drive

Model A

Makes any FORD into a 1¼ ton Truck; standard wheelbase length, 124 in. or 112 in. . . .

$390

Special wheelbase, 136 in. **$410**

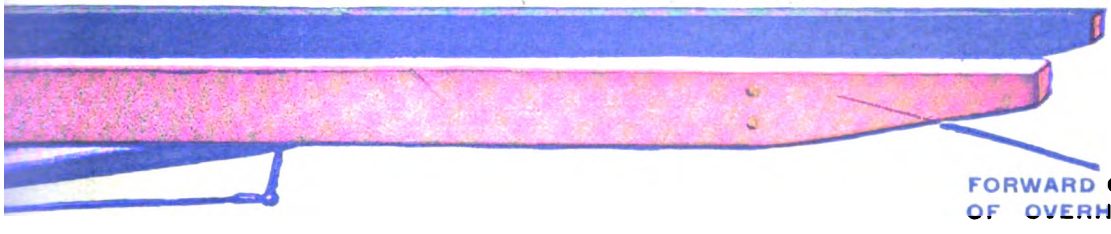
Model B

Makes any FORD into a 2-ton Truck; standard wheelbase length, 126 in. . . . . .

$490

Special wheelbase, 138 in. **$510**

Prices f. o. b. Philadelphia and Detroit



FORWARD CONNECTION OF OVERHANG FRAME

SLIP JOINT TO CARE FOR SPRING ACTION

TRUXTUN

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WIRE for exclusive territory



The TRUXTUN agency for your territory would be a big asset for you. TRUXTUN Units are easier to sell and more profitable than pleasure cars, trucks or other truck units. Territory is going fast. Dealers everywhere are eager for it. Our contract gives you *exclusive* rights. Reserve your territory today—next week may be too late.

COMMERCIAL CAR UNIT CO.

16th Street and Glenwood Avenue

Philadelphia, Pa., U. S. A.

TRUXTUN

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Herschell-Spillman Company are completing large additional facilities for still further increasing the scope of their original plans for a large production of automobile motors.

This makes it possible to negotiate a few more contracts for deliveries beyond January 1st, 1918.

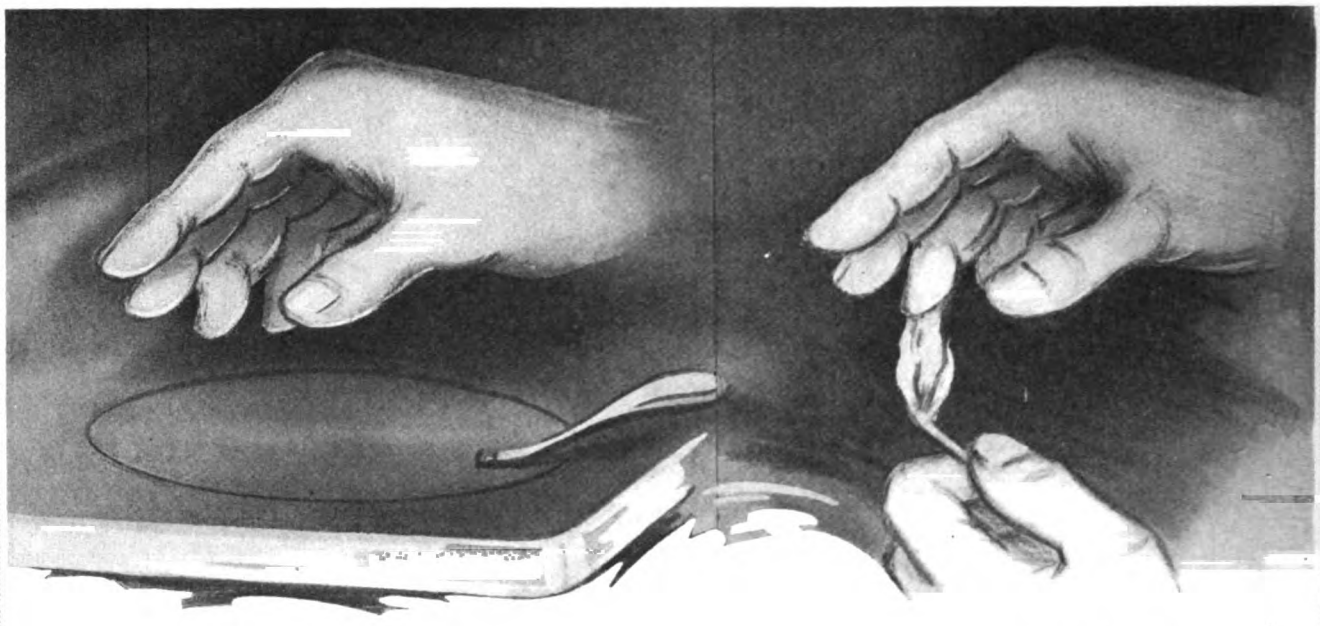
The SPILLMAN 3¼ x 5—four, and 3¼ x 5—eight cylinder engines are pre-eminent as power plants for automobiles.

The reasons may be set forth convincingly to those who are interested in producing passenger cars of high merit.

Upon request we will submit evidence which will impress the mind of the manufacturer of the propriety of installing Herschell-Spillman motors in his automobiles.

HERSCHELL-SPILLMAN CO.
North Tonawanda, N. Y.

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A Stove
Warms Your Hands

A Match
Burns Your Fingers

The flame of a match is **hotter** than the top of a stove, but it does not cast as much warmth, **because it hasn't as much radiating surface.** A match **burns** one part of your hand and **leaves the rest cold.**

That is just the big point about the Thermo-Heater. It has a **large radiating surface.** Its heat is **distributed.** It is **comfortable** heat.

The Thermo-Heater is not small and red hot, to burn your feet and leave your body cold. It is large and warm, and it radiates a **large quantity** of heat. It warms you all over.

And you can **regulate** the heat, so as to maintain just the temperature you want, by means of the Thermostat attachment. You can let in a degree of heat to warm you on the **coldest** days, and then when the weather moderates you can tone the heat down to suit your comfort.

The THERMO AUTO HEATER

The Thermo-Heater is easily attached. It sets on the floor, not in the floor. There are but three holes to bore and the pipes to connect.

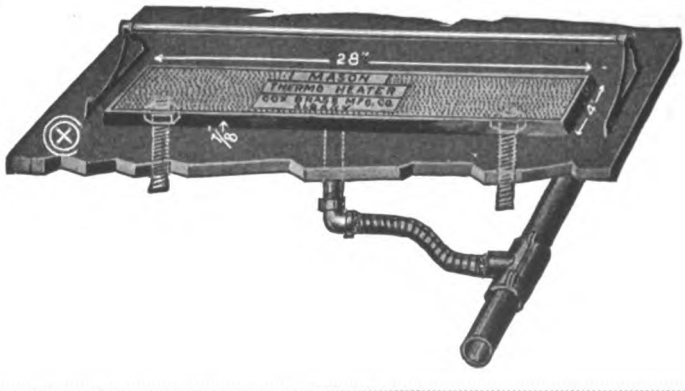
Description—Model "A," 28" long, 4" wide, 1" thick, Cast Iron Black Enameled.....$12.00

Model "B," 28" long, 4" wide, 1" thick, Polished Cast Aluminum.....$18.00

Model "C," 14" long, 8" wide, 1" thick, Cast Iron Black Enameled.....$12.00

Model "D," 14" long, 8" wide, 1" thick, Polished Cast Aluminum.....$18.00

COX BRASS MFG. CO.
(Established 1872)
N. Pearl and Van Woert Sts., Albany, N. Y.



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Nail it Now!



AJAX Dealer's Franchise

GREATEST MONEY-MAKING OPPORTUNITY IN TIRE HISTORY

More Tire Dollars for You!

YES, Ajax Dealer's Franchise is a *sensational* success with profit-seeking dealers far and near. They have responded by the *thousands*. There are few—*very few*—spots where we have not yet signed up an Ajax Franchise Dealer. If your neighborhood is one of these—get all the facts *quickly*. Then decide

Ajax Dealer's Franchise

with permanent privileges and advantages first of all offers Ajax inbuilt quality. As you know, Ajax Tires are

Guaranteed In Writing 5000 Miles

—the guarantee firmly maintained. Ajax is a *natural* selling success.

97% Owners' Choice

Of all Ajax output this big proportion goes to motorists themselves to take the place of tires that came first on their cars.

AJAX ROAD KING

Then there's the splendid leader—Ajax Road King Tire—a monarch in quality, a democrat in service. Ajax superb Red and Gray Inner Tubes. And Ajax National Advertising for 1918—hundreds of thousands of dollars—will introduce a dominant sales idea—the biggest in tire history.

No Time to Lose

If we have no Ajax Franchise Dealer in your locality, get all the facts at once. It is worth your while to wire.

AJAX RUBBER COMPANY, Inc.

1796 Broadway **New York**

"While Others Are Claiming Quality, We Are Guaranteeing It"

When writing advertisers please mention Motor World—It identifies you

Digitized by Google

Prest-O-Lite STORAGE BATTERY



Dealers: It will pay you to investigate this better Battery. Write today for Special Literature or see the nearest Prest-O-Lite Service Station—Now!

Not only a better battery but

Digitized by Google

Perfected Process Plates

QUICKER starts—longer life—greater staying power—the all-important standards of value to you in any storage battery—depend first of all on the plates, the real basis of the chemical action which creates electricity for starting, lighting and ignition.

In the great, modern Prest-O-Lite factories, experts have devised many new and efficient processes to insure you a better battery, and one of their greatest triumphs is the Perfected Process Plate—a distinct departure from previous plate-making practice—an established feature of all Prest-O-Lite Batteries.

Years of effort, research and expenditure stand back of this process.

The active, pasted material is seasoned by a new and different treatment which produces a super-hard center or "back-bone" of gradually increasing porosity as the surface is reached.

The super-hard center provides all the strength, stability and long life of the so-called "hard plate," but without the sacrifice of "pep" and power which is characteristic of all "hard plate" batteries.

The porous, super-sensitive surface, growing from the hard "back bone" or center, provides all the "pep" and power of the so-called "soft plate," but without the sacrifice of long life which is characteristic of all "soft plate" batteries.

In short, the two most desired extremes in storage battery performance—hitherto believed impossible of accomplishment—are provided by the process developed by Prest-O-Lite.

No other battery plates were ever made by this process.

The actual proof to you that "Prest-O-Lite" is a better battery is not only in this and many instances of better making, but in its remarkable records in service.

Manufacturers of representative cars in every class have adopted the Prest-O-Lite Battery as standard equipment. After close observation they have discovered a notable freedom from battery troubles among more than a half million users.

You can eliminate most of your battery troubles by getting a Prest-O-Lite Battery—the battery with the Perfected Process Plates. There is a correct size to fit your car. It will give you the utmost in satisfactory starting, lighting and ignition service.

No matter what make of car you own—no matter what make of battery you have—Prest-O-Lite Service is always ready to help you in the prevention of storage battery troubles. We will gladly test your battery, add distilled water and give you unbiased advice as to its care.

Prest-O-Lite Service Stations everywhere have service batteries for you to use when your battery needs repair. The Prest-O-Lite Service creed begins and ends with the words—"Satisfy the Owner."

The Prest-O-Lite Company, Inc.

U. S. Main Office & Factory, 902 Speedway, Indianapolis, Ind.
Canadian General Office & Factory, Dept. L.3, Toronto, Ont.

DIRECT FACTORY BRANCHES

Atlanta	Davenport	Memphis	Pittsburgh
Baltimore	Denver	Merritton, Ont.	San Antonio
Boston	Des Moines	Milwaukee	San Francisco
Buffalo	Detroit	Minneapolis	Seattle
Chicago	Indianapolis	Montreal	St. Louis
Cincinnati	Jacksonville	New York	St. Paul
Cleveland	Kansas City	Omaha	Syracuse
Dallas	Los Angeles	Philadelphia	Toronto
			Winnipeg

—and more than 800 specially appointed Prest-O-Lite Battery Service Stations in all parts of the country.

backed by Prest-O-Lite Service

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This is a Time When the Dealer Appreciates a Really Good Car!

ANALYSIS of car sales shows conclusively that phenomenal sales during periods of extreme optimism are not the soundest factor in building successful business.

It is the constant repetition maintained day after day that counts most in the long run. Business that is steady in periods of depression and whose volume is ever on the increase is business which step by step and sale by sale spells permanence. It is this sound foundation that makes the difference between the business of the unstable dealer and the stable automobile merchant.

This kind of substantial, sustained sales must be built on a high class car with a reputation that is fundamentally sound—one on which you may safely stake permanence in business.

In times like these there is a great deal of satisfaction in being able to have a car like the Cole Eight to sell.

COLE 8

Present Prices
Seven Passenger Cole Eight Touring Car...$1995
Four Passenger Cole Eight Roadster.....$1995
Four Passenger Cole Eight Tourcoupé.....$2495
Cole Eight Four-Door Toursedan.....$2695

Prices f.o.b. factory

Subject to change without notice

Cole Motor Car Company
Indianapolis, U. S. A.

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H-M

Adjustable METAL Radiator Covers For All Model Ford Cars

Here's what the H-M Cover does for the Ford owner:
Protects radiator from freezing and bursting; operates from the seat of the car; is completely adjustable, may be set in any position weather dictates (note adjustable shutters shown in photo); keeps motor and water warm in coldest weather and saves enough fuel in a few months' service to more than pay its price. H-M Covers are made of sheet metal and can be used year after year.

Price $5.00

DEALERS—Send In Sample Orders Now

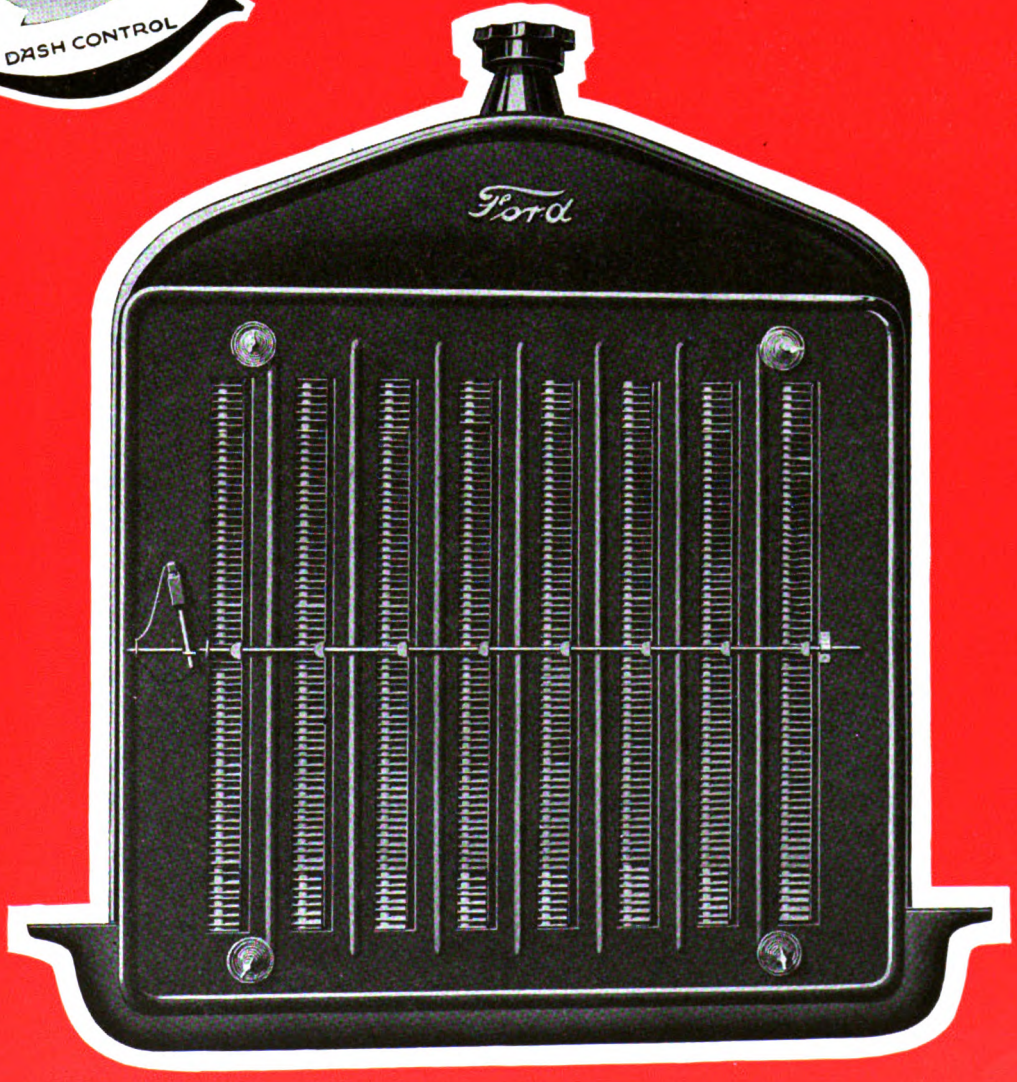
Get your orders in today. You have never handled an automobile accessory that will show quicker sales and surer profits with less effort, time and money invested. H-M Covers are selling by the thousand. It's up to you to get your share of these easy profits. Use the coupon today.

H-M Mfg. Company
122 S. Michigan Avenue
CHICAGO

USE THIS COUPON

H-M Manufacturing Co.,
122 S. Michigan Ave., Chicago.
Please ship me at once.....H-M Adjustable Metal Radiator Covers for all model Ford Cars.
Name .....
Address .....





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REO
"THE GOLD STANDARD OF VALUES"

Here's the Great Point About the Reo Line

INTERCHANGEABILITY of units of the various Reo models—fours and sixes, automobiles and motor trucks—renders this the most flexible line from both a manufacturing and a selling standpoint.

EVERY DEALER KNOWS that certain units in each Reo model are interchangeable in other Reos.

BUT HAD YOU CONSIDERED that, right now, for example, when the "pleasure car" demand naturally lulls for the moment, the demand for motor trucks is heaviest?

THE POOR OLD HORSE goes under when the bad weather and the slippery streets come, and the business man now has to choose between buying more horses to replace the disabled ones—or just changing his entire equipment over to trucks, and be done with it.

THOSE DEALERS WHO are so fortunate as to have a truck in which enters the same sound engineering, and back of which is the same guarantee as that which goes into the automobiles they sell, are lucky.

BUT WHEN, IN ADDITION, the factory is able to slack off production on one or more models and push faster on others, using the same materials and tools all the while—that's the ideal condition.

REO DEALERS now can get Reo trucks to fill orders for almost imdiate delivery.

THAT'S AN ALL YEAR 'round business—and that, from the distributor's standpoint, is ideal.

DO YOU ENJOY a condition of that kind? If not, perhaps you had better get in touch with our sales department.

YOU NEVER CAN TELL, you know—this might be the "psychological moment" for you to secure the Reo line. We seldom change, but occasionally we find a dealer who doesn't, and seems unable to, measure up to the Reo standard of doing business, and so we have to change.

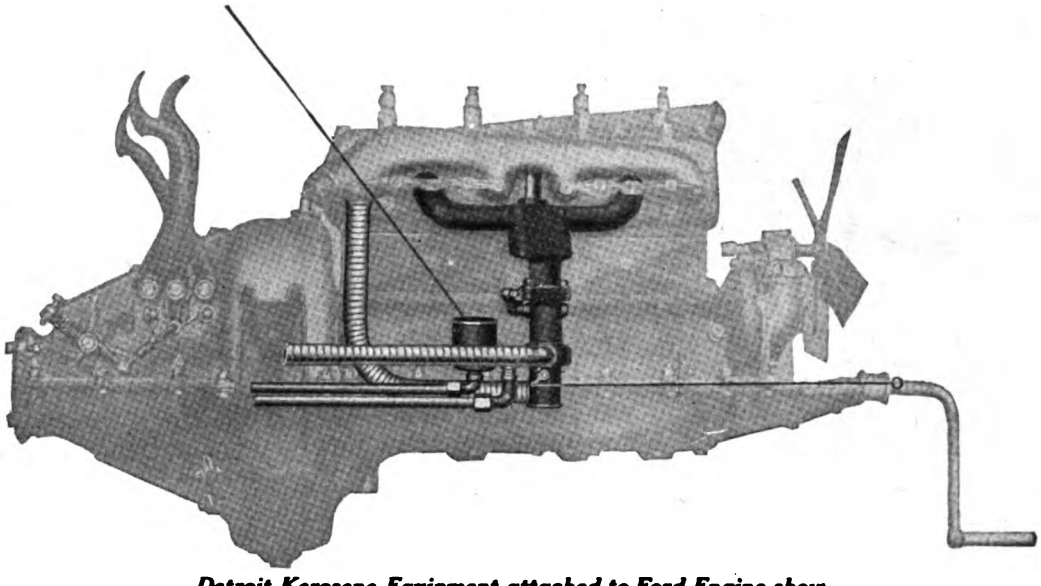
IT IS JUST POSSIBLE that such a change is due in your district, and if your application is on file (it will be treated as confidential, of course), you'll get the first chance.

Reo Motor Car Company

Lansing, Michigan

Digitized by Google

Detroit *Kerosene* Equipment For Fords



Detroit Kerosene Equipment attached to Ford Engine showing the entire installation except the Gasoline tank located under floor board.

Use Kerosene

(*Coal Oil*)

One mile on Kerosene costs less than ½ cent.

One mile on Gasoline costs from 1¼ to 1½ cent.

Buy a Detroit Kerosene Equipment For Fords

Save 60%

Price of Equipment (*F. O. B. Detroit*) **$22**

30 Days Trial or MONEY BACK

Act Promptly

These are days of strict economy.

The Kerosene Equipment ready to be attached to Ford engine consists of:

1. The Detroit Kerosene Carburetor (patent pending) with only one float chamber (for kerosene); the three way valve admits the gasoline for starting.

   Is non-adjustable—throttles down smoothly—idles without loading—increases mileage—is a positive fuel and money-saver—makes no condensation in cylinders and—reduces speed changing.
2. Intake Manifold with drying chamber.
3. Flexible tubings.
4. Gasoline tank, tube and couplings.

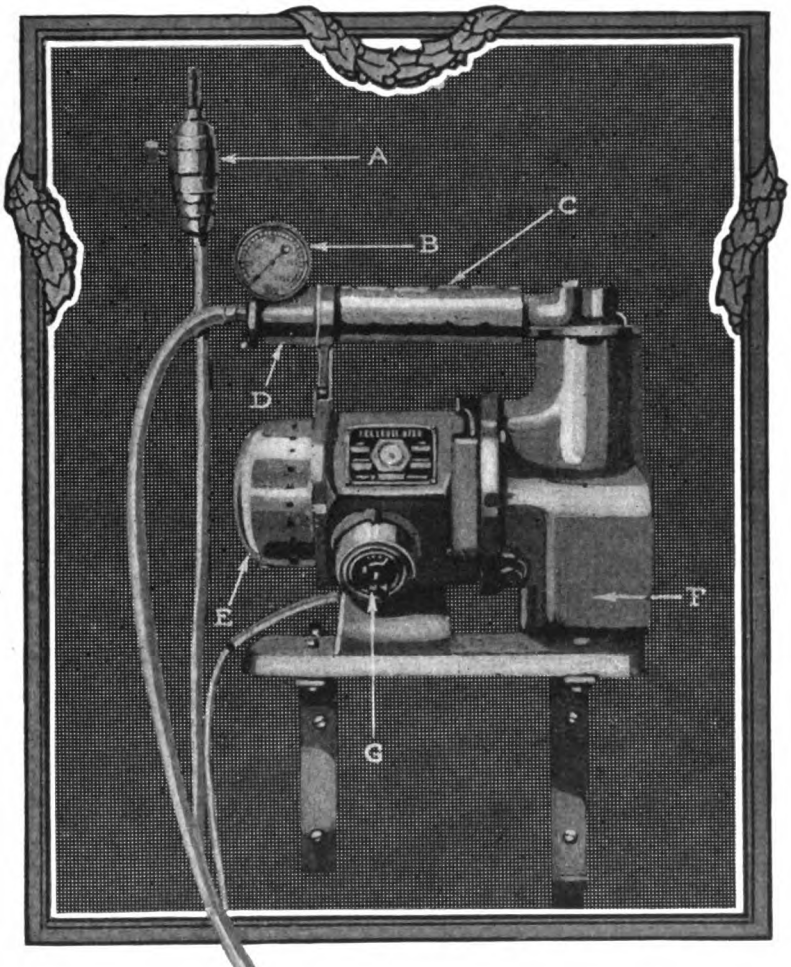
INSTALLATION

1. Drill a ⅞-inch hole into center of exhaust manifold.
2. Remove intake manifold.
3. Clamp on new manifold.

DETROIT KEROSENE CARBURETOR CO., Department Kresge Building **Detroit, Mich.**

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LECTROFLATER
ELECTRIC AIR COMPRESSORS



A SCIENTIFICALLY CONSTRUCTED SELF-CONTAINED "MOTOR AND COMPRESSOR"

A LECTROFLATER Electric Air Compressor is as scientifically designed, as accurately built and as carefully manufactured as a high grade automobile engine.

That's why LECTROFLATER Pumps wear years longer and give such greater all round satisfaction.

They are the most powerful, most capable air pumps of their size in the world.

They are built for hard service, are virtually trouble proof, have an operating expense that is negligible and are guaranteed to pump only **cool, clean, dry** air.

Note These Features:

A. Operates from any electric light socket, universal windings, uses either alternating or direct current—a big advantage should you ever move where the form of current is different.

B. Accurate automatic air gauge, which shows pressure in tire before, during and after inflation.

C. Condensing chamber, which abstracts all moisture from the air; also serves as handle when pump is carried.

D. Water trap,—the condensed water gathers in this trap and can be withdrawn at will.

E. Patented automatic forced draught air cooling system, ultra efficient. Pump can be run continuously without heating.

F. Lubrication by capillary attraction. Grease—not oil—is used. No oil level to maintain. No oil spray to ruin tires.

G. Handy switch button for starting or stopping motor.

H. The complete unit—electric motor and compressor—is self-contained in a single housing. No exposed working parts, either electrical or mechanical—no exposed gears, shafts, chains or belts. The outfit comes complete—ready for work as soon as unpacked.

THE BLACK &

107 South Street, Baltimore, Md.

U. S. A.



Lectroflater Curb Station. A striking business display that commands attention and holds customers. Price $200.00

No. 2 Portable Tank Outfit. Easy to push around. Very popular in large garages and salesrooms. Price $175.00



DEALERS and JOBBERS

Every garage man, every tire man, machine shop, fleet owner and car dealer needs air service—the better, cheaper and more lasting the service the better for him.

These men are quick to appreciate the superiority of the Lectroflater line. Not only does it permit of a wider selection but the quality of the product plus the many exclusive features insure quick sales and satisfied customers.

We are completing arrangements Now for distribution through established jobbers and dealers. Discounts and catalogue electrotypes will be furnished reputable distributors upon request.

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MILES of COOL, CLEAN, DRY AIR, CHEAP.

Your modern dealer and garage man has learned the value of cleanliness. He has learned to conserve space, to eliminate unnecessary noise, to value his time, to stop leaks that cost money.

That's why LECTROFLATER Electric Air Compressors are displacing so many old-style pumps—cumbersome, unsightly, expensive-to-operate pumps.

LECTROFLATER Pumps **save** space because they are small and compact in size—built on the idea of an electric drill. Yet they are quicker and more powerful and have a greater capacity than most ordinary pumps three times their size.

A LECTROFLATER Pump IS **economical.** It soon saves its cost in current. It will inflate ten tires from 40 to 80 lbs. pressure at a cost of **one cent.** That means 100 tires at a cost of 10 cents, or a thousand tires at a cost of one dollar.

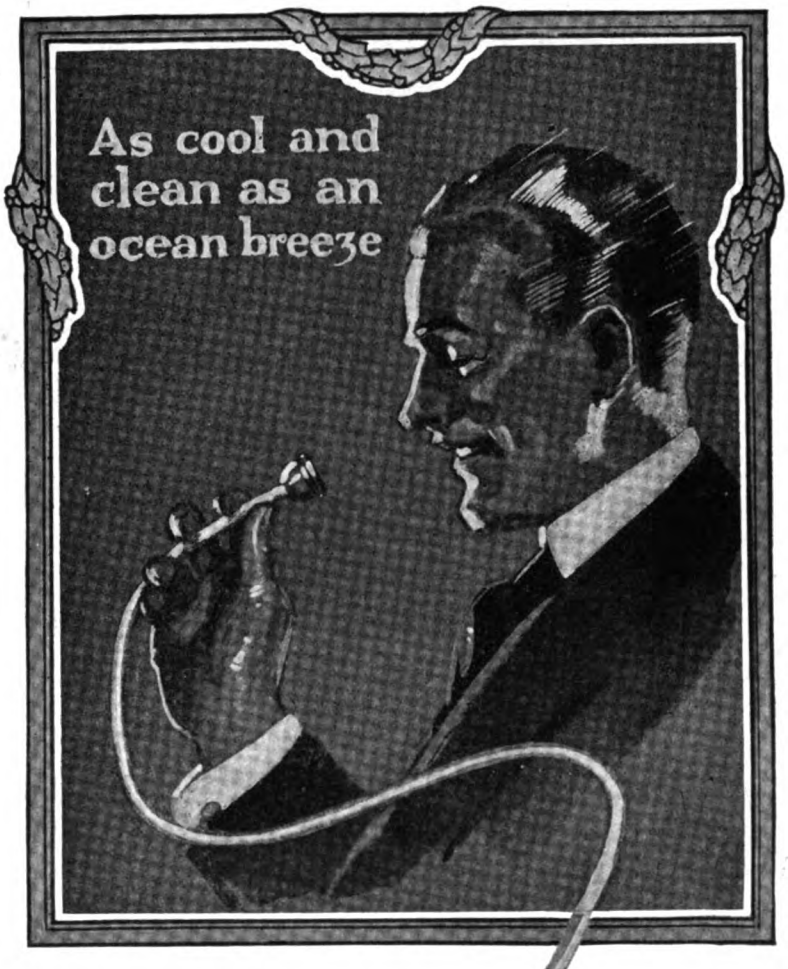
It IS **quick.** It saves time—your time and the customer's time. It will inflate a 33 x 4 tire from flat to full pressure in 2 minutes.

It is *clean.* There is no place for dirt to gather. All working parts are self contained under a single metal housing free of crevices and sharp corners. It is clean cut in appearance. It is clean working and relatively quiet in operation. And what is most important of all it delivers *clean* air to the tire, air that is free from oil spray and moisture.

It is *handy*—since it is small. It can be carried about like a satchel. To operate merely connect the cord to any electric light socket and turn the switch, that's all.

It is strong and durable, built for hard continuous service. It is accurately designed and finely constructed of the best materials obtainable. We have yet to hear of a LECTROFLATER Pump that has ever worn out.

LECTROFLATER
ELECTRIC AIR COMPRESSORS



DECKER MFG. CO.

Distributors in Canada
Northern Electric Company
LIMITED
Montreal

WRITE FOR CATALOGUE

LECTROFLATER Electric Air Compressors are obtainable in a wide variety of sizes and combinations.

There are vertical tank and pump combinations, automatic tank and pump combinations, portable tank and pump combinations, De Lux curb outfits, little units and big units units small enough to be carried about like a satchel, outfits that can be pushed about like a cart, tire shop outfits that can be mounted on brackets on the wall, out of the way; outfits mounted on light portable tubular frames like an adding machine, with tool tray included; units for indoor use and units for outdoor use, units of almost every kind at prices to fit almost any pocket book.

Complete descriptive literature on request. Prices range from $50 up.



No. 2 Automatic Stationary Tank Outfit. Ideal equipment for instantaneous service. Price $165.00



Model No. 2 Garage Pump. Mounted on movable carriage. Price, complete, $80

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WILSON TRUCKS

WILSON TRUCKS are unusually easy to drive regardless of road or load. This feature, peculiarly Wilson, insures maximum returns from both truck and driver. One, two, three and one-half, and five ton worm drive models.

Write for our dealer's proposition.

J. C. WILSON COMPANY
489 Warren Avenue, West, Detroit

When writing advertisers please mention Motor World—It identifies you

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BIJUR ON THE JOB

They Find the Truth About Non-Gran and Adopt It

THE Bijur Motor Lighting Company, manufacturers of the "Bijur System" for electric lighting and starting, are not content, nor have they ever been content, to stand still.

With "Bijur" it is always test—test—test. And when Bijur makes a test they do it right. They don't test one or two samples for one or two weeks. They test hundreds of samples and test for months.

Because of this "Forge ahead" policy, "Just good" was not good enough for the main bearings supporting the armature of the Bijur Generator. In their search for complete adequacy and uniformity, in these vital bearing parts, Non-Gran Bronze was naturally among the many metals tested. Hundreds of Non-Gran castings were put through the ropes.

Of course Non-Gran proved its superior adequacy and superior uniformity. When put to actual service test Non-Gran **always** proves its superiority.

If it's a "Bijur" you can bet on its bearings.

AMERICAN BRONZE CORPORATION

Barwyn **Pennsylvania**

HIGH SPEED NON-GRAN BEARING BRONZE

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LALLEY-LIGHT
THE BALL-BEARING ELECTRIC LIGHT PLANT

Far-seeing motor car distributors and dealers are taking territory for Lalley-Light.

They are calmly and methodically insuring their businesses, their sales organization, and their incomes, against a possible readjustment in the production of automobiles.

LALLEY-LIGHT
ELECTRIC LIGHT AND POWER FOR EVERY FARM

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LALLEY-LIGHT
ELECTRIC LIGHT AND POWER FOR EVERY FARM

A $400,000,000 electric light market ready and waiting among the nation's 6,000,000 farmers—who will be richer during the next few years than ever before.

This is the field that is ripe for the coming of dealers with Lalley-Light.

Lalley Electro-Lighting Corporation, 1826 Mt. Elliott Ave., Detroit, Mich.

LALLEY-LIGHT
THE BALL-BEARING ELECTRIC LIGHT PLANT

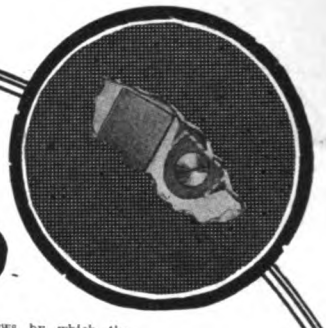
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Those Five "Thief-Proof" -Reasons-

FOR FORDS

$3.50



3

The screws by which the switch-lock is attached to the coil box cannot be removed because of the Goodrich patented shutter construction—the screw heads are covered by hardened metal shutters when the switch is locked.



1

The Lock is the famous YALE lock; known the world over for its invincible security. The same turn of the key that shuts off your ignition also locks your car and safeguards it against theft. Each key is individual.

Goodrich LOCKSWITCH WITH YALE LOCK



4

"Approved by the Underwriters Laboratories." This means tested by them and found to be completely thief-proof. It likewise means a 15 per cent reduction in your theft insurance.

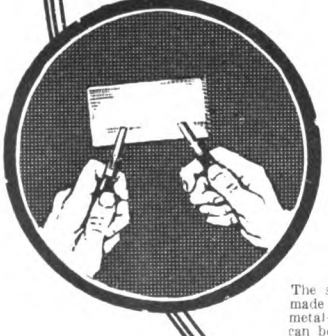
INSURES REAL PROTECTION

Don't encourage theft by leaving your Ford unprotected—a tempting invitation to every passing thief and joy rider.

More Ford cars are stolen than all other makes of cars put together; and no car is more difficult to recover or more easy for the thief to sell.

No thief or joy rider can run away with YOUR car if it is GOODRICH protected.

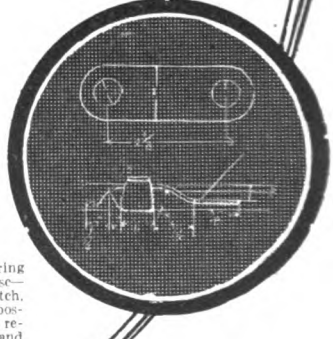
Easy to install. No tools, except a screw driver, needed.



2

The switch-lock housing is made of a special ductile metal—a special alloy—that can be bent by severe blows but not broken.

For sale by all good dealers and jobbers everywhere.



5

These two parts—a spring contact and metal disc—concealed within the switch, make it absolutely impossible for the thief to rewire back of the dash and thereby start the engine.

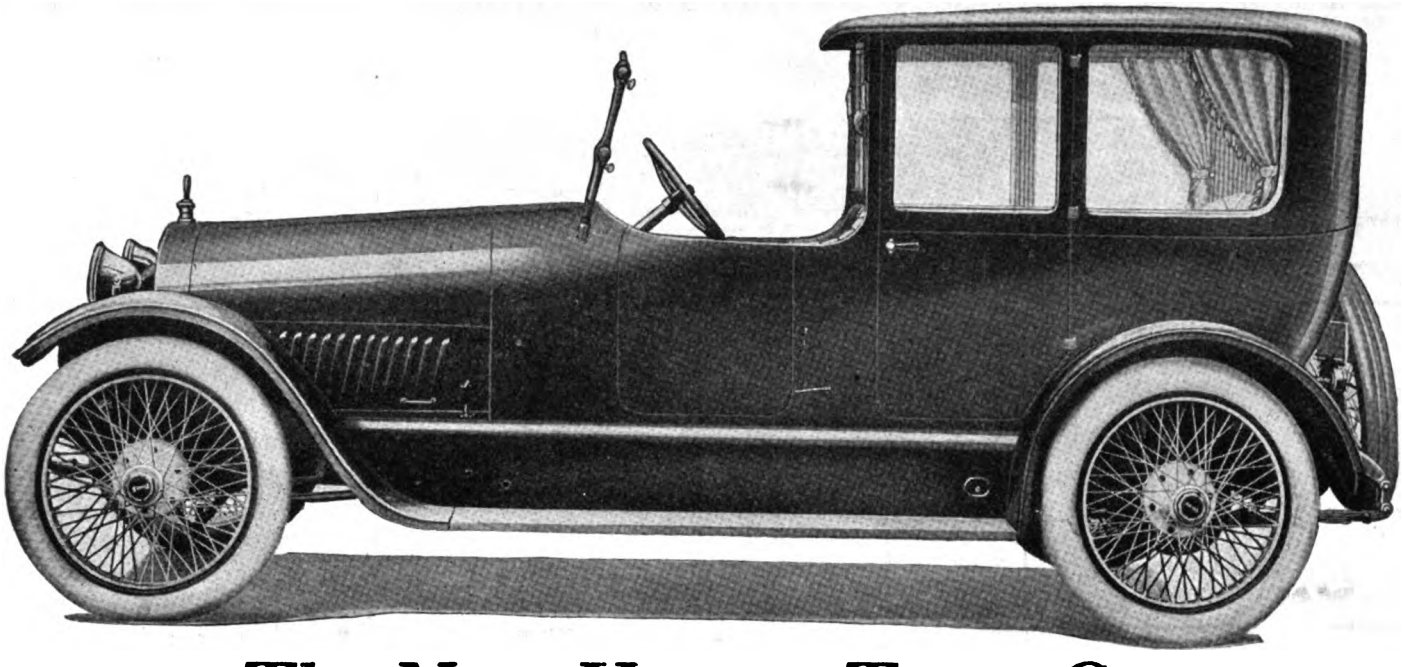
GOODRICH-LENHART MFG. CO.

418 Widener Bldg. Philadelphia, Penna.

Factory, Hamburg, Penna.

When writing advertisers please mention Motor World—It identifies you

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The New Haynes Town Car

ULTRA-smart in its contours and equipment, this 1918 Haynes Town Car creates an epoch in fashionable offerings for the season.

Inlaid mahogany vanity and smoking cases, artistic corner and dome lights, silk robe rail, French pleated upholstery of delicate shadings with de luxe silk curtains to harmonize, plate glass windows which lower by aid of convenient lifts, Perfection heater, double windshield, speedometer and clock, are luxury touches of this elegant coach.

Five are seated within. The chauffeur's seat accommodates two additional.

Roominess predominates. Careful construction has mininized the weight. Springs are unusually broad, long and resilient.

The hood is high-arched and broad-chested. The body lines are straight. In deep carmine, royal green, Haynes blue or beige brown, the appearance of the car cuts a commanding figure.

Duplex headlights further enhance its style. Hartford shock absorbers add to the riding ease.

To be had in both "Light Six" and "Light Twelve" models.

—The 1918 Haynes Line also embraces all—season sedans, coupes, four-passenger roadsters, five and seven-passenger open cars.

We have a splendid proposition for the dealer. Write or wire.

THE HAYNES AUTOMOBILE COMPANY *70 S. Main St., Kokomo, Indiana, U. S. A.*

25th Successful Year of

HAYNES

"America's First Car"

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SUNDERMAN
Vacuum Carburetor

$6

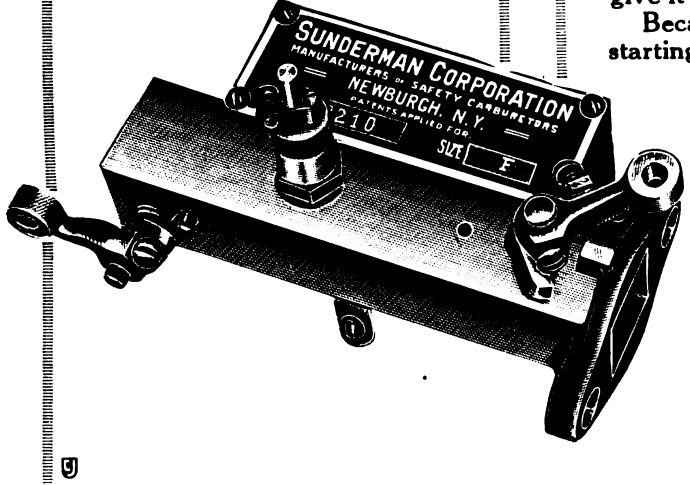
F. O. B.
Newburgh

For other cars the prices are $8 and $10, depending on the fittings required. Its service is supreme on all makes and models of cars.

See Us at the Shows—

New York
Space D-8, Fourth Floor

Chicago
Booth 5, Armory Balcony



Starts Easily and Surely in Zero Weather

Our exclusive choke makes starting in Winter as easy as in Summer when your motor's equipped with a Sunderman Carburetor.

It simply shuts off the air while you are cranking. Thus the cylinders draw in pure gasoline—finely vaporized because of the Sunderman mixing principle—and your motor fires on the first turn nine times out of ten.

Enthusiastic buyers are writing us daily—"the quickest-starting carburetor in cold weather that I ever saw."

With a Sunderman there's no need, therefore, of the provoking crank, crank, crank, a wheeze, a "spit" and a dying motor every time you want to start.

No need, either, for letting your motor waste gas while the car is standing because of hard starting.

The SUNDERMAN Starts in a Flash—Because IT'S RIGHT

It's RIGHT because it is scientifically designed to give perfectly efficient carburetion at all times—in frigid February as well as sultry Summer.

It's designed for POWER, and gives as a by-product an economy of 30 to 50 per cent in gasoline on any motor.

It's **flexible**—even an amateur driver can run it up and down a range of speeds that is almost uncanny. Therefore, it has a **quick pick-up**—galloping from low to medium to high speed as quickly almost as you can give it the gas.

Because of its design, its mixing principle, its quick starting, its power, pick-up and economy

The Sunderman Carburetor Is Unparalleled in Winter Use.

Car Owners: Give your motors a Christmas present—a new lease of life—a **Sunderman.**

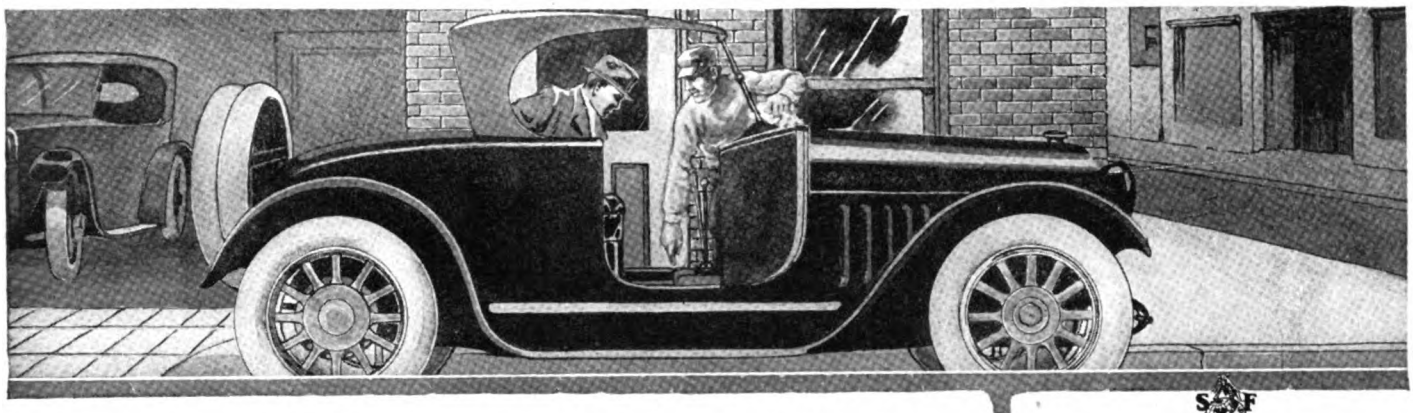
Dealers: Our proposition is a great feeder for your cash register. Write for it NOW.

Sunderman Corporation

9 Chambers Street Newburgh, N. Y.

Western Office: 403 Kresge Building, Detroit

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The Insides of Your Car

Friction!

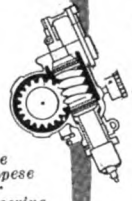
Friction devours more potential power than anything else in an automobile. Could friction be entirely overcome, we would have perpetual motion. Reduce friction by scientifically correct lubrication, and you approximate perpetual motion.

Reduce friction and you reduce wear. You keep the car new; few repairs and replacements; comfortable driving and riding; all 'round satisfaction. Correct lubrication means greater motive power—increased mileage.

—and scientific lubrication is cheapest—sometimes even in first cost—always in ultimate cost.

Scientific lubricants for Scientific Lubrication

For 64 years the Swan & Finch Engineering Department has developed scientific grease and oil products. Each lubricant has been carefully evolved to meet specific conditions. Particularly designed to lessen friction in the motor car are:



Use Cupese for Steering Gears.

CUPESE

Cupese is a high quality cup grease—an ideal protectant. It reduces friction and wear and tear.

It adheres to bearing surfaces, is tenuous and elastic—positively prevents metal-to-metal contact.

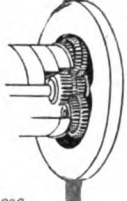
Cupese is made by the Acaloric Process, exclusive to Swan & Finch Engineers, by whom it was evolved. It is this method of manufacture which makes Cupese non-volatile. It does not liquefy nor evaporate under intense heat—does not cake at low temperature. It out-lasts ordinary cup greases.

GEARESE

—A correct transmission and differential lubricant for motor cars and trucks.

Gearese insures a silent, smooth-running car.

It prevents worn and noisy gears. It follows the gears continuously—leaves no spots where metal can rub against metal. It is unaffected by temperature changes—does not run in hot weather, nor cake on the walls in cold weather—it lubricates instantly and constantly. It should be packed in the gear case and differential about once a year.



Use Gearese for planetary transmissions.

MOTUL—is a super-quality motor oil especially adapted to the finer grades of motor cars. It is made in a variety of densities, to suit individual requirements. It functions properly under intense heat and leaves a minimum of carbon residue. These qualities make it especially practical.

Your garage man and accessory dealer carries these products. If not, write us.

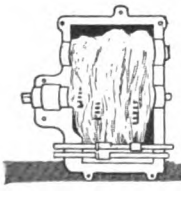
Yours for the Asking

"The Insides of Your Car" is a brand new volume of real common-sense information regarding motor cars. It will be sent free on request.

SWAN AND FINCH COMPANY
NEW YORK

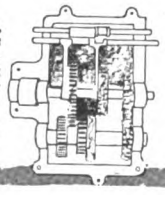
Quality Oil and Grease Products Since 1853

To select accessory dealers and garages, an opportunity is open for a permanent, profitable connection with the Swan & Finch Company for heavily advertised quality automobile lubricants. Particulars on request.



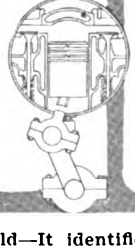
NOTE THE DIFFERENCE

In the one gear case, Gearese—clingingly follows the gears from the first revolution. The other shows a poor gear lubricant—it cakes on walls, needs time to bring it to lubricating consistency. Meanwhile—friction and wearing gears. Use Gearese.



ENGINE KNOCKING?

Perhaps it is on account of the motor oil. Motul approximates a "perfect seal"—has special heat-resisting properties, due to the exclusive Acaloric Process used in manufacture. Use Motul.



Specialties:

SLO-FLO

The super-lubricant; will not drip, climb nor spatter, withstands excessive heat and pressure.

CUPESE

A quality cup grease for all machinery requirements.

GEARESE

A correct transmission and differential lubricant for motor cars and trucks.

MOTUL

A superior quality motor oil for the protection of valuable automobiles.

ASBESTESE

An asbestos and wool-mixed grease lubricant for car journals.

CORUL

A liquid binder that meets the 11 requirements of perfect core casting.

AERUL

A practical high quality oil for aeroplane motors.

TEXTUL

An economical, high quality oil compound for wool and worsted manufactures.

MARINUL

A world-known special oil, produced to meet the excessive stresses of marine service.

TALESE

An economical, practical drop-forge die-swabbing grease compound.

EXESE

The 600 deg. F. Lubricant—for oven gears, bloom cars—calender rolls, automatic stokers—or lubrication under excessive heat conditions anywhere.

VESUVESE

A waterproof lubricant for exposed gears—for cable dressing.

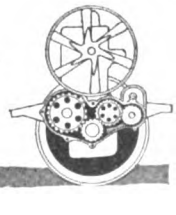
LARCUL

A practical, economical metal-cutting lubricant.

Atlas General Line

Atlas Engine Oils
Atlas Cylinder Oils
Atlas Turbine Oils
Atlas Dynamo and Motor Oils
Atlas Crank Case Oils
Atlas Transformer Oils
Atlas Cutting Oils
Atlas Tempering and Quenching Oils
Atlas Spindle and Loom Oils
Atlas Wool Oils
Atlas Leather Oils and Greases
Atlas Fish Oils

Use Slo-Flo for Timing Gears.



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In the January 5th issue of The Saturday Evening Post the first of a series of page advertisements of BURD HIGH COMPRESSION PISTON RINGS *will appear.*

These advertisements will create a vast consumer demand for BURD HIGH COMPRESSION RINGS. *When people ask for* BURD RINGS—*when you equip their cars with them, they will* KNOW *they are getting the best—rings that will* END *their piston ring troubles.*

This means increased confidence in you, and greater satisfaction from your service.

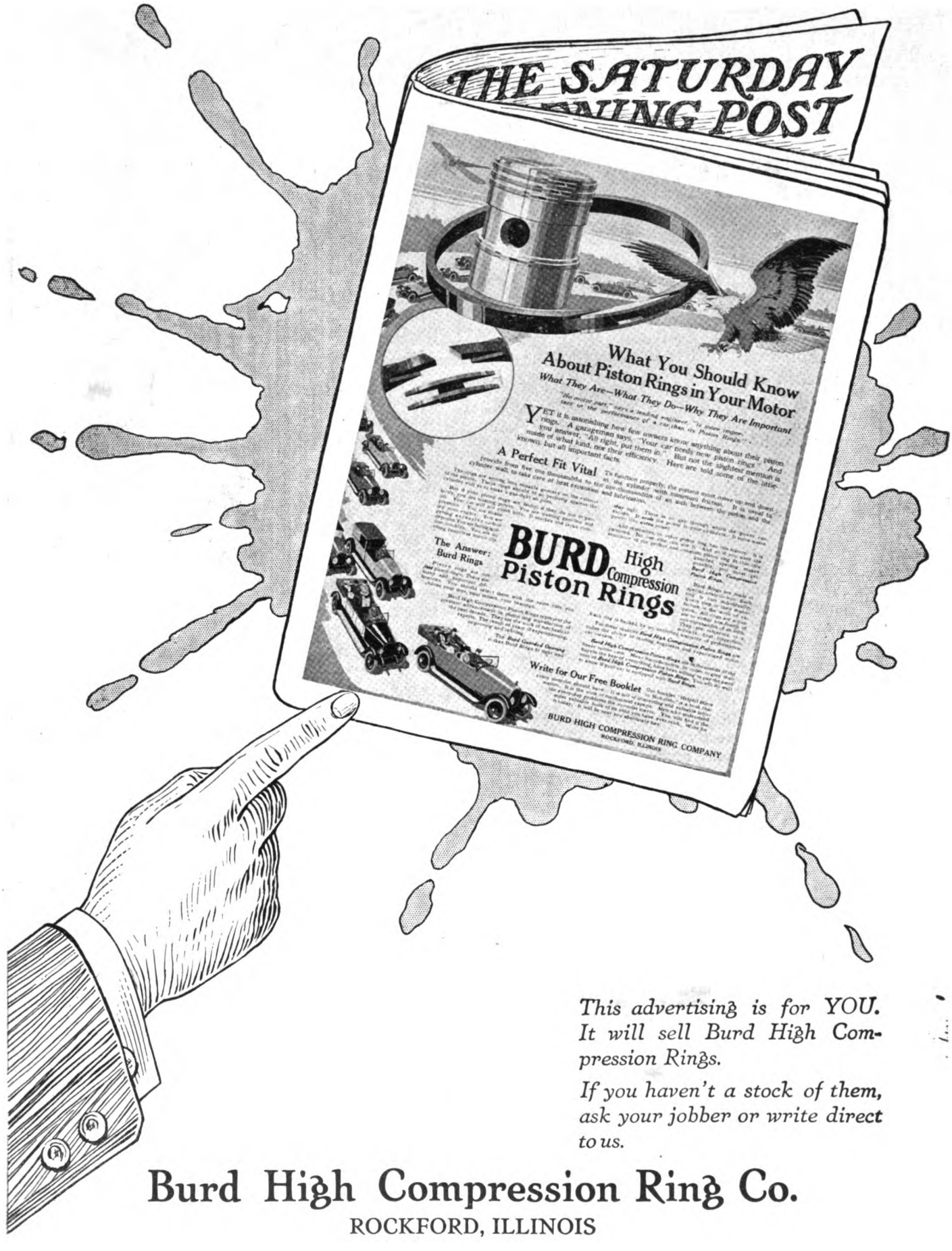
Watch for these advertisements. See how we are standing back of every BURD *dealer. How we are selling* BURD RINGS *for him and with him.*



The Burd Guarded Opening, Seals all the Power in Your Cylinders

BURD High Compression Piston Rings

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This advertising is for YOU. It will sell Burd High Compression Rings.

If you haven't a stock of them, ask your jobber or write direct to us.

Burd High Compression Ring Co.

ROCKFORD, ILLINOIS

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Sedan Anchor Top Coupé

Glass-Enclosed

Tremendous popularity of Anchor Tops has this season overshadowed the success of separate winter-tops, in all automobile history.

Even with the tripled capacity of our larger, splendidly equipped factories, established over 30 years in high class coach-building, we have been taxed to the utmost in filling orders for

OVERLAND	BUICK	OAKLAND
Model 85, B-4 and 6 Model 90 Country Club	*D-34, D-35, D-44 and D-45, as well as the New E-44 and E-45*	*Models 32 and 34 Roadster and Touring Car*

They may be seen at leading Overland, Buick and Oakland dealers' show rooms, as well as on the boulevards of practically all leading cities.

They are all beautifully finished—strong—light—durable. There is no over-hang—no squeak or rattle.

They fit perfectly, as if built on the car. Come ready, complete, and anyone can put one on easily and quickly. Priced—

$100 to $175
and up

According to Car Model
F. O. B. Cincinnati

Shown or supplied by your dealer—or, write to us for full details.

We accept $25 deposit with order. Be sure to tell us your car name and model.

Write for descriptive literature.

THE ANCHOR TOP & BODY CO.
Factories Established Over 30 Years
7419 South Street, Cincinnati, Ohio



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Blankets won't help much if—

the oil you are using does not flow freely at Zero.

SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

THIS is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "Flows freely at Zero" and leaves less carbon, owing to the fact that it is a Southern Asphalt-base oil containing no paraffine to gum, stick or thicken.

MANUFACTURED BY

GULF REFINING COMPANY

The Largest Independent Refining Company in the World

General Sales Offices: Pittsburgh, Pa.

District Sales Offices:
New York Philadelphia Boston Atlanta Tampa New Orleans Houston



There is MORE POWER in
THAT GOOD GULF GASOLINE
AND SUPREME AUTO OIL
MANUFACTURED BY
GULF REFINING COMPANY
PITTSBURGH, PA., U. S. A.

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ACME

THE TRUCK OF PROVED UNITS

Note These Proved Units

Continental Motor
Timken Axles
Timken Bearings
Long Radiator
Detroit Springs
Ross Steering Gear
Eisemann Magneto
Rayfield Carburetor
Stewart Vacuum System
Pierce Governor
Cotta Transmission
Borg & Beck Clutch

and all other units of known highest grade.

147 Big Advertisements

1918—a banner year for every Acme dealer! National advertising—147 smashing wallops in 26 leading magazines. Arrange now to reap the benefit of this great Acme truck advertising campaign.

Doubled Production; Doubled Dealer Profits

The strength of Acme *proved units* as a convincing sales reason has forced *doubled* production of Acme trucks in 1918. Doubled production means doubled sales for Acme dealers—and *doubled profits, too!*

Immediate Deliveries

We are ready now to close desirable territory with desirable men. Dealers can expect immediate deliveries. And *"Proved Units"* is the strongest selling point in the entire truck field.

Write today for complete details.

Trade Mark Registered U. S. Patent Office

ACME THE TRUCK OF PROVED UNITS

Cadillac Auto Truck Company

Cadillac, Michigan

Three and one-half, Two-ton and One-ton Models

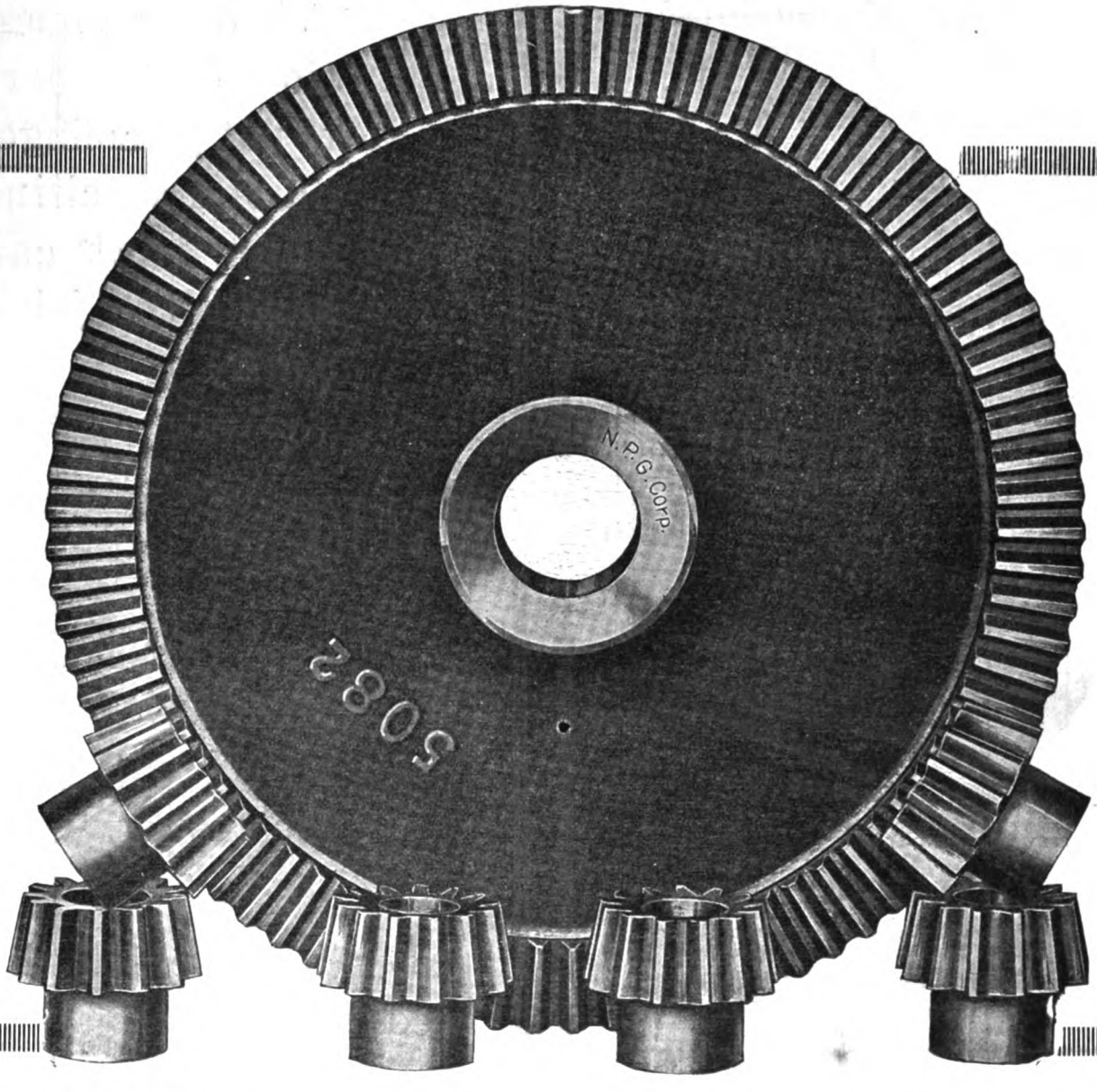
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Try Us on Bevel Gears

We've specialized on bevel gears, as indicated by our capacity and the fact that hundreds of thousands of our bevels are standard parts on leading automobiles, machine tools and other machinery.

Our equipment provides for generating the correct shape of tooth which assures the highest quality of workmanhip and for a rapidity of production which makes our prices attractive.

Give us at least a chance to figure on any quantity, size, pitch and finish.



N.P.R.H. REG. U.S. PAT. OFF.

NEW PROCESS GEAR CORPORATION

SYRACUSE, N.Y.

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Are You Making Money?

—or losing it?
—just how much are you ahead or behind?
—what part of your stock or shop is making and what part losing?
—and why?

Motor World's Simplified System of Accounting

—will answer all these questions. It will tell you exactly where you stand *at any time*, where your profit and loss take place.

It is the CHEAPEST, SIMPLEST AND SUREST METHOD of finding and stopping losses; of checking up purchases, sales and stock on hand.

You don't have to be a bookkeeper—the

Complete Instruction Book Shows You Exactly How to Use It

You can start and run it yourself, or *any man* in your garage or shop can do it. SENT ON 5-DAY APPROVAL. Get it. Look it over. If you are not satisfied with it, send it back and your money will be refunded. DON'T LET ANOTHER DAY PASS WITHOUT IT. Saves its cost—$15—the first month you use it.



Use the Coupon Now

OVER 1500 GARAGE, REPAIR AND SUPPLY MEN USING IT NOW

TALLMAN, ROBBINS & CO.

Exclusive authorized manufacturers of Motor World Simplified System of Accounting

314 W. Superior St., Chicago
320 Broadway, New York

TALLMAN, ROBBINS & CO.
314 West Superior St., Chicago.

Dear Sirs:
Ship me complete "Motor World Simplified System of Accounting" with Book of Instructions. I enclose $15, in full payment with understanding the same will be refunded if I am not satisfied and return the System within 5 days.

Name .....

Street and Number.....

City and State.....

12-5-17

YES

It is quite a question just where to put your finger on the Machine Shop that can handle the job—*quickly*.

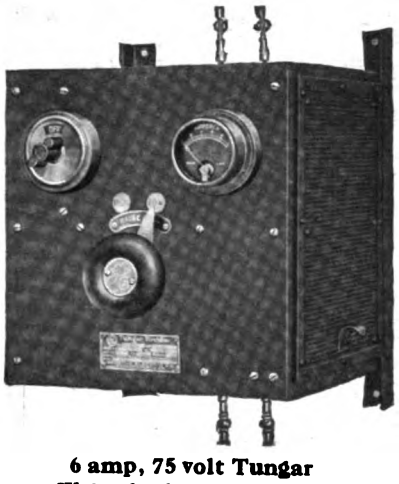
BUT

our CONTRACT WORK DEPARTMENT will give the answer.

Refer to page 157 this week's Number.

Contract Work Dept.
MOTOR WORLD

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6 amp, 75 volt Tungar
Write for booklet B-3412

Many Small Profits Make Big Earnings

No matter how small a part of your business battery-charging may be, why not get all you can out of it? You can turn a nuisance into a good profit by means of the low cost but efficient

Tungar
RECTIFIER

Low First Cost
Low Operating Cost
High Efficiency

Self Starting
No Moving Parts
Simple Construction

Tungar saves current, saves time and operates without attention

GENERAL ELECTRIC COMPANY

General Office: **Schenectady, N. Y.**

7512



CURTIS AIR FREE FROM OIL

The Curtis Compressor is the only one designed to prevent flooding the cylinder with more oil than it needs for lubrication. This, because of our controlled-splash oiling system. No excess oil is forced into the air line. **Oil ruins tires**—air free from oil means fewer blowouts and increased mileage all around for your customers, with less tire adjustments to you. Make your place the most popular one in town. An easy and inexpensive way, is to install a Curtis Compressor. The customer assumes if you have the best free air service, you will have the best service in all departments.

Costs No More Than Ordinary Compressors—But Note The Difference

Live garages and service stations are using Curtis Air Compressors. Motorists expect free air service. Why not give them the best and win over new customers by supplying, not only reliable air service, but **Curtis Air—Free From Oil.** A poor air system which shoots oil into the tires, or which is unreliable, drives customers away. Thousands of Curtis Outfits are rendering daily, effective, efficient service all over the country. Your Curtis Compressor can further pay for itself by supplying air for air hoists, painting, cleaning, vulcanizing, blowing dust and drillings from tools, and many other things. Curtis Compressors are backed by manufacturers who have been specialists in this line for twenty-five years.



10 Combinations of Compressor and Tank Sizes—Any Current

Five Sizes—Tight Pulley Only, or Tight and Loose Pulley

11 Combinations of Compressor and Tank Sizes—Any Current



Makes New Customers—Holds Old Ones

Quickly pays for itself in bringing in new trade and holding the old trade, for it not only is the source of a dependable supply of air when your customers want it, but it also supplies clean, cool air—free from oil. Motorists realize that oil will quickly destroy their inner tubes, and, therefore, look for a station that supplies Curtis Air—Free From Oil.

Curtis Compressors are built to meet the requirements of your business in sizes, arrangements and prices. Send coupon at once for full information and attractive prices. It will pay you to investigate our proposition. *Write us today, or ask your jobber for prices—but insist on a Curtis.*

Winter Business—Cold Weather Made Profitable

Curtis Pneumatic Machinery Co.

1546 Kienlen Avenue St. Louis, Mo.
Hudson Terminal, New York

Curtis Pneumatic Machinery Co.
1546 Kienlen Ave. St. Louis, Mo.

Gentlemen: Please send me full details regarding Curtis Garage Air Compressor—your proposition and low prices.

Name.....
Address.....
Jobber's Name.....
Address.....

When writing advertisers please mention Motor World—It identifies you

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Springs Axles Bearings

The Successful Motor Car Heater

IN THEIR third successful year, Perfection Heaters are now standard equipment on more motor cars than all other heaters combined.

These successful heaters stimulate winter sales.

Manufacturers who fail to appreciate this expose their dealers to unnecessarily severe competition.

Dealers may, however, readily supply the deficiency. Perfection Heaters are easily installed in virtually any car.

Perfection Heaters are inexpensive and cost nothing to operate. They utilize the waste heat of the motor and radiate it into the car.

Write for complete catalogue of the several types of Perfection Motor Car Heaters.



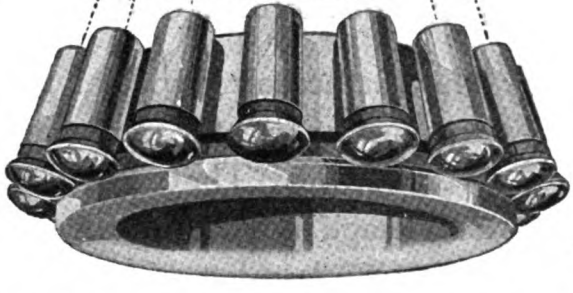
THE STANDARD PARTS CO. CLEVELAND, O.
Rims, Steel Tubing, Motor Car Heaters

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BOCK

Everything Rolls



More Efficient—Stronger—More Durable

HERE are bearings that *really* roll.

Every contact is a *rolling* contact—even the *end* contact.

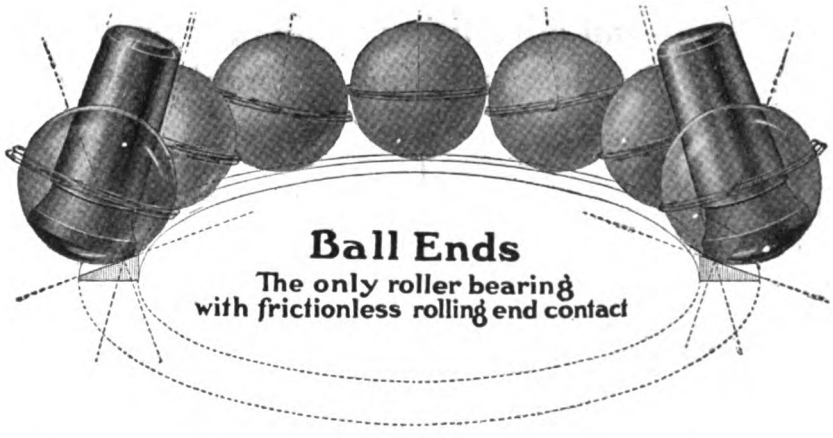
In other roller bearings the ends slide.

That means friction. Also a weaker bearing.

The load-carrying capacity of the Bock is far greater than any other bearing made.

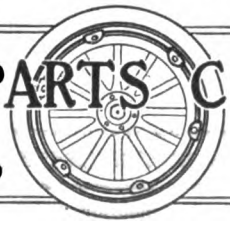
And, of course, being practically frictionless everywhere, they use less power than any other bearing.

For the same reason, they are more durable than any other bearing.



Ball Ends

The only roller bearing with frictionless rolling end contact



THE STANDARD PARTS CO. CLEVELAND, O.

Rims, Steel Tubing, Motor Car Heaters

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Forceful Appeal to the Trade

Dealers, jobbers and garage owners are the natural and successful channels of distribution for cars, trucks, accessories and supplies. To reach this combined class with strong merchandising appeal, and at a minimum of expense, is made possible via the advertising pages of Motor World.

The forthcoming special Before Show Numbers are of greater importance this year than ever before. They can be used to splendid advantage by manufacturers who hope to have their merchandise message read and carefully considered by the big wholesale and retail distributors throughout the industry.

MOTOR WORLD is published weekly. Edited exclusively for dealers, jobbers and garage owners—those who sell and maintain all products of the automotive industry. As an advertising medium it presents an unique value, assuring favorable introduction and

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contact with thousands of dealers and maintenance men. Its audience is 100% interested. It talks the language that is understood and appreciated by its readers, who have come to depend upon Motor World for authoritative information, education and guidance.

THE SPECIAL BEFORE SHOW NUMBERS ARE:

DEC. 26—BEFORE NEW YORK SHOW NUMBER.

JAN. 16—BEFORE CHICAGO SHOW NUMBER.

In order that there may be no eleventh hour rush, please send copy and cuts to arrive at New York office at least one week ahead of publication dates. This cooperation will promote mutual advantage. Address all communications to: Motor World, 239 West 39th Street, New York City.

Take Advantage of this Opportunity

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AC Spark Plugs

The Standard Spark Plug of America



Special for Ford Cars
A C CICO



⅜" Regular
For Maxwells
A C TITAN



½" Regular
For Willys-Overland
A C TITAN



½" Regular
For Studebakers
A C TITAN

AC Plugs have proven to be the best under all conditions. That is why 87 manufacturers of Automobiles, Trucks, Tractors and Aeroplanes use them for regular equipment. The leading race drivers are using them. *Your* motor will not give its best performance unless equipped with AC. You will come to them in time. Why not buy a set *now* and note the improvement?

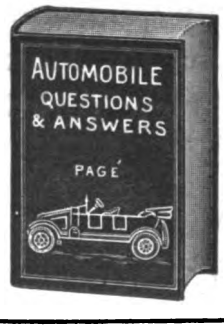
CHAMPION IGNITION COMPANY, Flint, Michigan, U. S. A.



New 1916 Edition of Questions and Answers

By Victor W. Page, M. E.

$1.50



$1.50

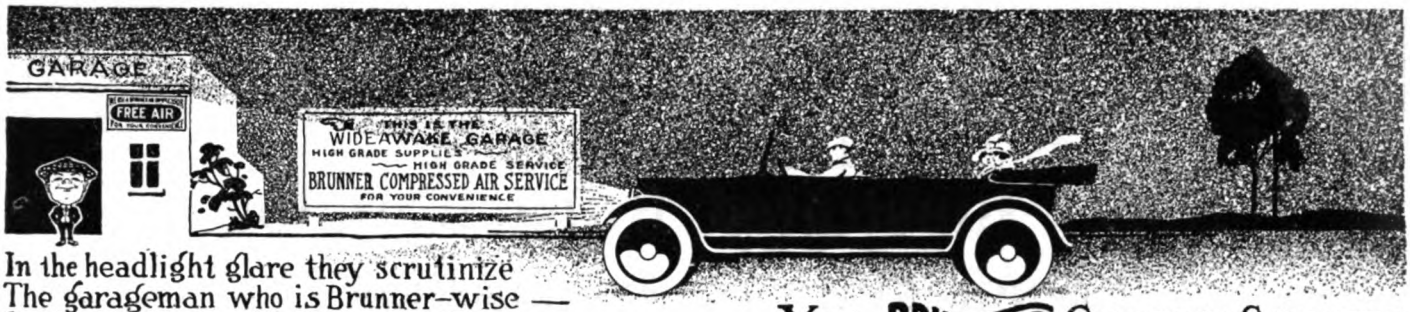
On Modern Automobile Design, Construction, Driving and Repair

Just off the press. A practical self-educator, consisting of 37 progressive lessons. Contains over 600 pages. Profusely illustrated with photographs and drawings of practical working parts. Includes all the latest developments.

Sent prepaid to any address on receipt of price.

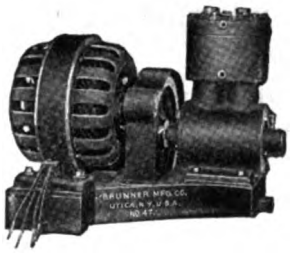
U. P. C. BOOK COMPANY, Inc.
241-249 West 39th Street NEW YORK

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In the headlight glare they scrutinize
The garageman who is Brunner-wise —
On the Brunner sign they rest their eyes
And stop for air and – some supplies.

YES, BRUNNER SERVICE SATISFIES



Mr. Garagemen, is your compressed air service a dependable efficient service such as the red-blooded motorist who drives his car all winter demands?

This is a pertinent question just now, Mr. Garageman, because the majority of these red-blooded winter motorists are Brunnerwise motorists who prefer Brunner Service, and a Brunner Air Compressor in your garage this winter would secure their trade.

INVESTIGATE THE BRUNNER AIR COMPRESSOR



If you do not find the Brunner Line in your jobbers' catalogue we will be glad to send you the name of the Brunner Jobber covering your territory and one of our complete catalogues and Handbooks on Compressed Air.



BRUNNER MANUFACTURING COMPANY

Main Office and Plant
UTICA, N. Y.

Cincinnati Branch
CINCINNATI, OHIO



How Would You Like to Sell a Fleet Like This?

SELLERS of motor trucks—your biggest year is looming up ahead! Never has the outlook been so full of possibilities.

The Government, the railroads, and the express companies join in warning the public to prepare for car shortages and freight congestion in the months to come. Four of the largest express companies, in a joint pamphlet of warning and advice, say, *"It is also requested that freight service and motor trucks be used for the short haul traffic in and around congested districts."*

INTERNATIONAL MOTOR TRUCKS are filling the breach on every hand. Far-sighted dealers are placing Internationals in increasing numbers with far-sighted business men. One large corporation is already using 600 Internationals. Dealers will find sales coming still faster as the situation becomes more and more serious.

INTERNATIONAL MOTOR TRUCKS meet the needs of any and every firm with transportation problems to solve, in 1500, 2000, 3000 and 4000-pound capacity sizes, at prices ranging from $1450 to $2550 for the chassis (f.o.b. factory) with suitable bodies for every business. You know International standards and reputation—but have you seen the new 2-ton Model G?

We offer this line of International Motor Trucks as a most profitable dealer opportunity. The time is ripe for easy selling. Your territory may still be open. If it is, get an International contract. Write today for full information.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
(INCORPORATED)
155 HARVESTER BUILDING CHICAGO U S A

When writing advertisers please mention Motor World—It identifies you

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The New Speer Illustrated Brush Catalog

IS NOW READY FOR DISTRIBUTION

This catalog illustrates and describes every brush used on starting and lighting systems of automobiles, regardless of whether the equipment is modern or has been in use several years.

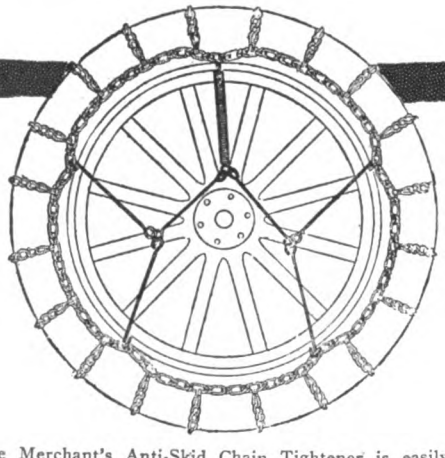
Information regarding the correct brush for each car or equipment is also given, thus making the catalog invaluable for dealers, garages and supply houses.

THE ENCYCLOPEDIA OF THE BRUSH INDUSTRY

Write today and have your name placed on the mailing list

SPEER CARBON COMPANY
ST. MARYS, PA.

Dealers simply can't *fail* to make money selling these Chain Tighteners at $1.00 a pair



The Merchant's Anti-Skid Chain Tightener is so simple and thoroughly efficient and so extremely low in price that it virtually sells itself to every motorist who sees it.

Simple, light, neat, compact and durable—in the most effective manner it keeps the chain from running too loose and pounding on the fender.

Merchant's Anti-Skid Chain Tightener catches the chain at five points, thus insuring even tension all around. It entirely obviates the danger of its unhooking and **yet allows the chain to creep around the wheels, which makes it safe to use on any tire.** The Chain creeps without slipping, for under heavy draw it grips the tire.

The Merchant's Anti-Skid Chain Tightener is easily carried and easily applied. It's easily sold, too, Mr. Dealer, and the retail price of $1.00 allows you a mighty liberal profit.

If your jobber cannot supply you—write us direct about this live proposition.

M. H. MERCHANT, 236 Emma St., Syracuse, N. Y.

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HALLADAY BUMPERS

L P H

DEALERS and JOBBERS, Attention!

The man who sells the Halladay Line for 1918 will dominate the bumper trade in his territory.

Our new Multiple Spring Bar and our new Standardized Bumper are the two big things of the year.

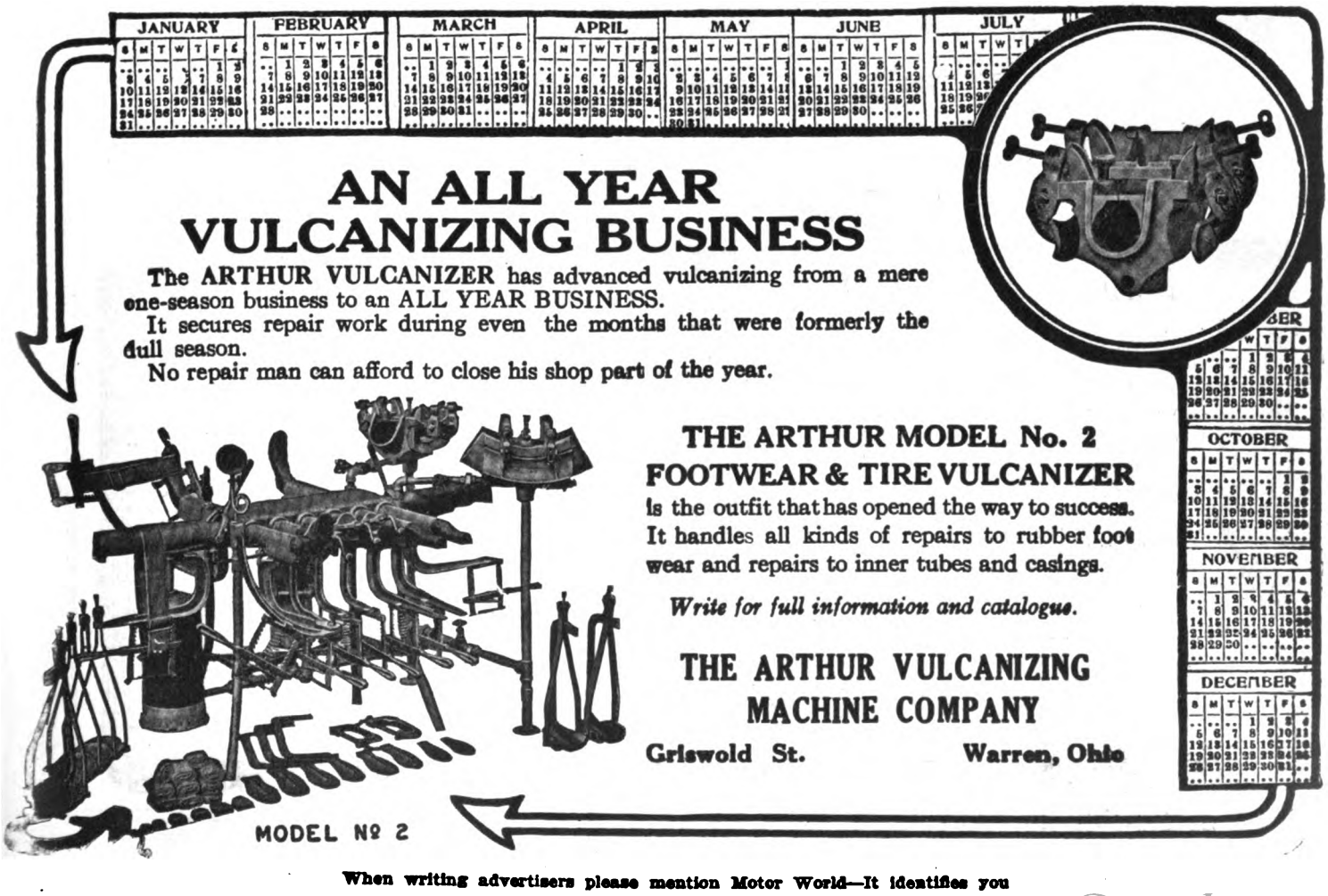
Write today for new catalog of bumpers and automobile accessories.

We sell to the trade only through regular channels.

L. P. HALLADAY Company.

STREATOR, ILLINOIS

DISTRIBUTORS: Asch & Co., 16-24 W. 61st St., New York City; E. L. Thompson Co., 817 Boylston St., Boston, Mass.; Gray-Heath Co., 1440 Michigan Ave., Chicago, Ill.; Sanford Brothers, Chattanooga. Tenn., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.



AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.

THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER

is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

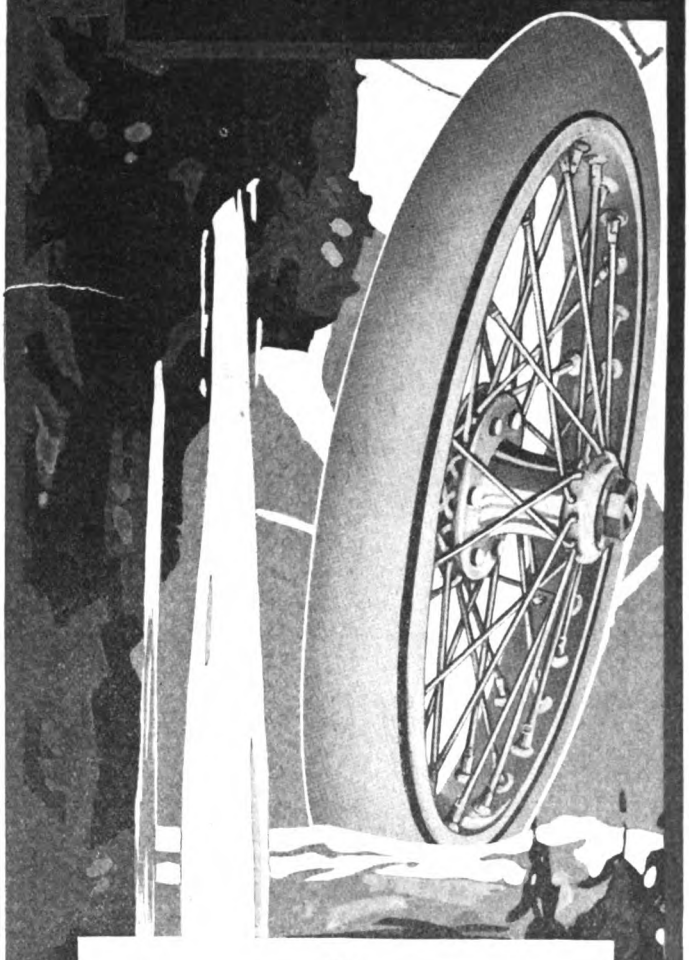
Write for full information and catalogue.

THE ARTHUR VULCANIZING MACHINE COMPANY

Griswold St. Warren, Ohio

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DAYTON
QUICK DETACHABLE WIRE WHEELS
MADE UNDER LICENSE



For
Ford and Chevrolet Cars
Amazing Mileage

Sound construction is the real basis of Dayton Wire Wheel endurance. The triple laced spokes and remarkable resiliency, coupled with all that vast experience, vast knowledge and mechanical skill can do, make the "Dayton" the sturdiest wheel today, in addition to increasing mileage 25%.

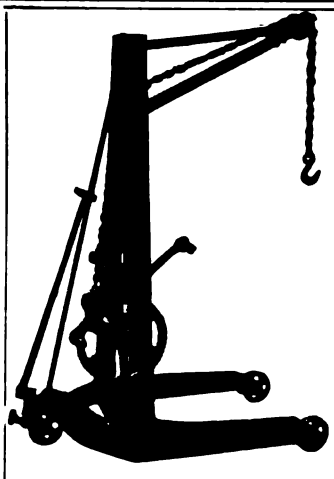
Five wheels and four hubs make a set—can be changed easily and quickly. Color optional. They lend the last touch of refinement to the popular Sedan and Coupelet for winter use. When the thermometer stands at zero you will appreciate the quick change feature of Dayton Wire Wheels.

DEALERS AND DISTRIBUTORS

Grasp this opportunity to increase your sales, profits and the number of satisfied customers.

Deliveries NOW.

The Dayton Wire Wheel Co.
826 Miami Road, Dayton, O.



QUICKEST, SAFEST and BEST WAY to

—take out engine or transmission and transport it to any part of garage.

—lift up front end of car to work on engine, transmission, universal joints, electrical parts, replace springs, fill grease cups, or remove whole front axle.

—lift up rear end of car to remove whole rear axle, replace springs, adjust brake parts, etc.

—take off bodies, radiators, etc.

The MANLEY PORTABLE FLOOR CRANE

is always ready for instant use. And you move the crane to the car, not the car to the hoist.

It has extraordinary lift and overhang (absolutely needed in automobile work); without being in the least top heavy, as its superstructure is of light, strong steel, and its base of heavy cast iron.

Better than a traveling crane—for loads up to its capacity—as it can be moved on its own wheels to any part of the shop.

Lighter and handier than other cranes, its cantilever (bridge type) construction is the strongest known.

1, 1½ and 2-ton capacity with any lift up to 10 feet.

Special Features: Double-throw operating lever, giving twice the leverage for heavy work. Safety guard on gears. Wide wheels, low clearance, locking device.

Prices, $64 to $82
($14 less without lifting device)

UNITED ENGINE & MFG. CO.
Hanover Pa.



Go Fast Over the Counter *for* Sales

The one-piece piston ring that sells at a moderate price and will not leak, goes fast over the counter to waiting trade.

SEAL-TITE is that kind of a ring. **Guarantees** more power, perfect compression, perfect lubrication, longer life to the motor, saving of gasoline and lubricating oil, absence of smoke, and clean spark plugs.

All individually cast and inspected. Made in every popular size and over-size. **Perfection guaranteed.** As low in price as 75c.

Write for free illustrated literature, and, if a dealer, ask for liberal proposition.

Seal-Tite Piston Ring Co., Inc.
1704 East Lake Street
Minneapolis Minnesota

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Gasoline or Oil To-day?



Be Sure You Get Your Supply From

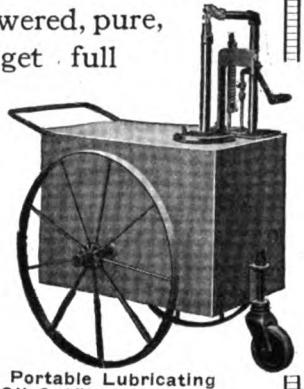
BOWSER ESTABLISHED 1885

GASOLINE *and* OIL STORAGE SYSTEMS

It will be full powered, pure, and you will get full measure.

Bowser Systems protect your gasoline and oil supply, both in quantity and quality. They measure accurately — are evaporation and deterioration-proof. Make your car run smoother and last longer.

Write for interesting booklet—Today.



Portable Lubricating Oil Outfit, Cut No. 154

Cut No. 102, Gasoline Outfit.

S. F. BOWSER & CO., INC.
Sales Offices in All Centers FORT WAYNE, IND., U. S. A. Representatives Everywhere

---

Frame construction of hardwood, more substantially ironed than any other on the market.



Meets the requirements of any line of business for delivery service.

Ford Owners are Your Prospects For HENNEY Commercial Bodies

The field is wide, the demand is insistent, the profits are good, our service to dealers is prompt and efficient—the Henney Line is complete.

We manufacture also complete line of Truck Bodies for new Ford one-ton truck and for extended Ford chassis—fit any truck unit now on the market

Sold for Cash Direct From Factory to Dealer

Saves selling expenses, enables us to supply you at prices that overcome all competition. Our line also includes commercial fenders for which there is a big demand at a good profit. Our many branches and thoroughly organized traffic department insure prompt delivery, and helpful selling service.

Write for our liberal agency proposition and for illustrated catalog showing the full Henney Line. Address Sales Office or nearest branch.

HENNEY BUGGY
BRANCH OF MOLINE PLOW COMPANY
Factory: Freeport, Ill. Sales Office: Moline, Ill.



Give Comfort to Drivers and Profit to Dealers

Motorists and truck drivers everywhere are learning about and using and getting the utmost comfort and satisfaction out of Steer Warms. Dealers throughout the cold-weather territory are stocking Steer Warms and "making good money" selling them. The demand has been created; all the dealer has to do is to let people know that they can buy Steer Warms from him. Everybody who runs a car "out in the cold" wants a pair of Steer Warms.

Within Reach of All

Steer Warms cost so little that every car-owner can afford to buy a pair—for all gasoline cars, $7.50 (in Canada, $11); special for Ford cars $5 (in Canada, $7.25). Liberal profit to dealers.

They're Trade Boosters

Steer Warms help dealers sell other things. They keep the cars running all winter and increase the demand for other accessories and supplies. They are thus worth-while trade boosters which live dealers appreciate.

Guaranteed for 5 Years

Steer Warms are made of the best materials, with the best workmanship and carry our unqualified guarantee to do all that is claimed for them; money refunded if they fail in any way. Guaranteed against burn-out for five years.

Get the Genuine

Steer Warms are the only hand-warmers in which the heating element is protected, thus insuring uniform heat and unbroken service. Don't experiment with inferior infringements; get the genuine Steer Warms.

Interstate Electric Co.

Sole Manufacturers

846 Perdido St. New Orleans, U. S. A.

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Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. Why not cash in on this opportunity? Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. Six years of Haywood's advertising has standardized the Haywood method.

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollar on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—**are easily operated—no experience necessary. Here is your opportunity** to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. **It completes your service—** a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.
1042 N. Capitol Ave., Indianapolis, Ind.

Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

Name .....

Address .....

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I Save Money Every Day with the HARTON LOOSE LEAF GARAGE PLAN



GARAGE OWNERS You are losing money every day if you have not installed the HARTON LOOSE LEAF GARAGE SYSTEM. The HARTON SYSTEM is an automatic bookkeeper that cannot make mistakes and requires no salary.

The HARTON SYSTEM turns losses into profits. Garage keepers write us telling how accurate and helpful this proven System is.



A Dollar Saved is a Dollar Earned

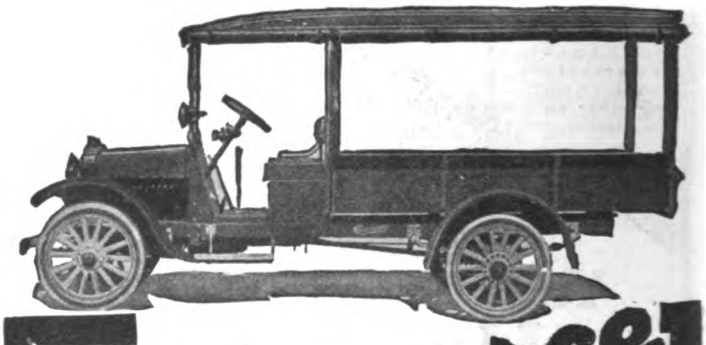
This Page is the Customer's Bill the one underneath is your copy

A FEW REASONS WHY

1—When you make an entry, a bill and charge are made at the same time.
2—Simplified method of recording and posting all items.
3—Avoids the necessity of posting each item.
4—Requires the minimum amount of labor.
5—Statements ready at end of month for immediate mailing.

Harton's Garage and Accounting Record is another new labor saving device we make. Ask a out it.

Send for Descriptive Folder and Full Particulars
THOMAS J. HARTON & CO., Inc.
Loose Leaf Specialists 212-A Church St., NEW YORK



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

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WILLIAMS'
SILVERBEAM
SEARCHLIGHTS
SELL

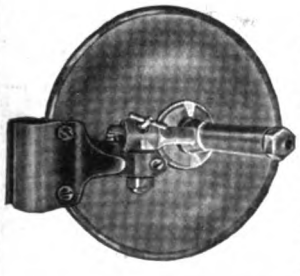
More readily than lower priced lamps when side by side on the dealer's counter, because they are

HANDSOME—Designed on beautiful lines, in harmony with the refined fittings demanded in the modern motor car.

WELL MADE—Superior workmanship showing at every point. Anti-rattling, heavy plating, baked enamel, connections complete.

PORTABLE—Readily detached to serve as trouble lamp—ten feet of cord gives easy access to every part of car.

LAW COMPLYING—The Williams locking bracket guards against infraction of laws regulating elevation ahead.

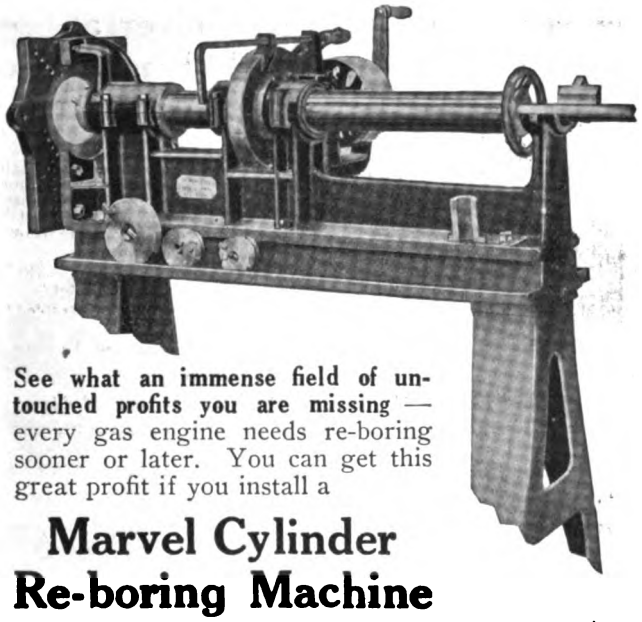


SILVERBEAM
$9.00 Baked enamel and nickel, in black or colors, convex lens, 6-inch reflector. With 7-inch reflector $10.00

Proven by three years' satisfactory service

Liberal Dealer Discounts
At All Jobbers, or Write

Williams Mfg. Co.
310 N. Flower, Santa Ana, Cal.



See what an immense field of untouched profits you are missing — every gas engine needs re-boring sooner or later. You can get this great profit if you install a

Marvel Cylinder
Re-boring Machine

The only device that will do the work and bring you the profit—no other like it for *speed, accuracy, simplicity* of *operation* and *general efficiency.*

Will re-bore any block, 2½" to 8" in diameter, perfectly round and without taper, accurate to less than .001 of an inch.

Write for particulars and about the accurate fitting pistons we supply.

MARVEL MACHINERY CO.
1305 S. Third St., Minneapolis, Minn.

RUSCO

The Better
Brake Lining

For years Rusco brake lining has been standard equipment on a number of makes of automobiles. It has retained this distinction because the manufacturers of these cars, by means of their own tests, have proved beyond question that Rusco is the better brake lining.

The extra long fibred asbestos insures remarkably long wear; heavy looms, specially constructed in our own shops, guarantee a close uniform weave; and our special impregnating compound makes Rusco water-proof, heat-proof and oil-proof. This is why

RUSCO BRAKE LINING

can always be depended upon to give long, efficient and satisfactory service.

DEALERS Your territory may be open. Write us for our special dealers' offer.

Other Rusco products include

Cone Clutch Facing
Clutch Discs

THE RUSSELL
MANUFACTURING CO.
Middletown, Conn.
New York City Detroit, Mich.



These 35 mills covering 450,000 sq. ft. stand behind Rusco products

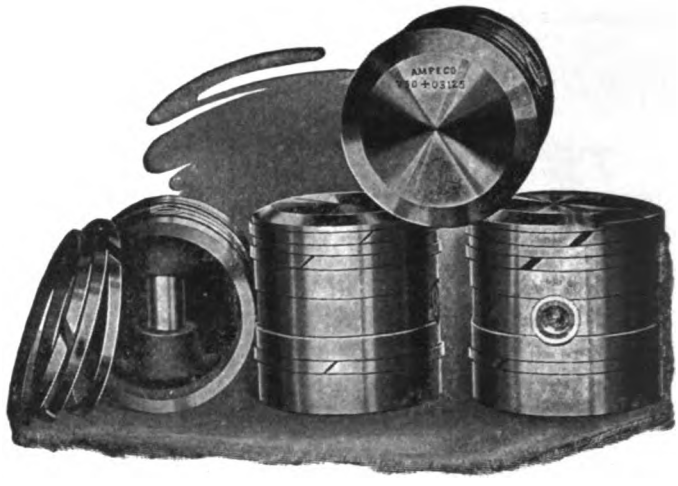
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District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available about Jan. 1. Established business with jobbers and garages awaits a few high grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.

Fords Converted Into Trucks and Tractors Can Now Use "AMPECO" PISTONS



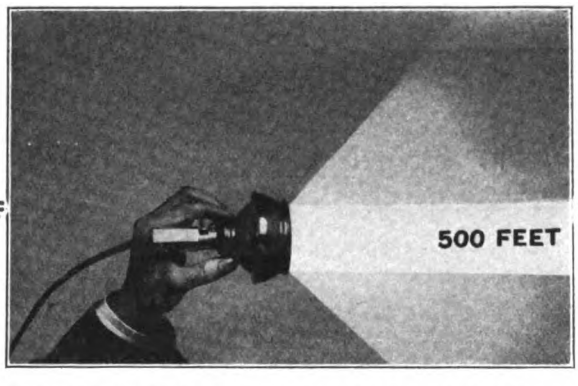
FOR EVERY FORD CAR IN SERVICE

Better running trucks and tractors that pay, smoother running passenger cars that skim along easily under every load, inevitably follow when you install "AMPECO" light weight, evenly balanced pistons in your Ford. Overcome main bearing troubles, give increased power and greater speed. Found always in the most efficient motors on Ford cars.

Use "AMPECO" Pistons and You Use The Best

AMERICAN MACHINE PRODUCTS CO.
MARSHALLTOWN IOWA

Exclusive Sales Agents—Fulton Sales Company, Suite 1100, 910 South Michigan Blvd., Chicago, Illinois



The CELLBEAM Concealed Spot Lamp Solves the Searchlight Problem

This compact electric searchlight is an exceptionally powerful projector of both spot and diffusive illumination. The concentrated beam of projected light extends 500 feet, while objects close at hand are illuminated by a diffusive glow of indirect and transmitted light, devoid of the annoying direct filament glare.

As a light accessory of style and convenience, strictly complying with the law, pertaining to the utmost in safety, the CELLBEAM SEARCHLIGHT represents the newest optical development. (Pat. November 6th, 1917, No. 1245512.)

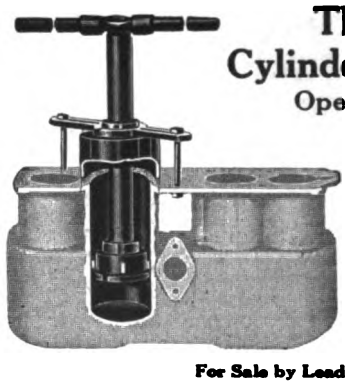
This advanced art in motor illumination provides not only a powerful main beam, but a non-glare general illumination as well.

Furthermore it is no longer necessary to clamp a projector to the wind shield thru some fanciful bracket. The precise dimensions of the CELLBEAM are such as to permit the concealment of the lamp in the side door pockets of an automobile. Wiring is as usual, to the battery cells, following the door hinges of the car.

All lamps are hand patterned to steel dies; finished in polished nickel; silvered reflectors; high grade switch included in handle; external focusing adjustment; five feet flexible cord; standard 6 V. nitrogen bulb. Other voltage to fit any electric current source supplied upon request.

Lamp in Every Respect Complete
Price $8

CELLBEAM MANUFACTURING CO.
1101 Bedford Avenue BROOKLYN, N. Y.



The Universal Cylinder Reboring Tool

Operates on Any Car

Rebores cylinder from start to finish without slightest taper, and perfectly round. Automatic and quick in action. Takes as much as 1/16" oversize in one operation, and completed job will be a smooth finished and true to 1/1000 of an inch.

Range of Expansion, 2½" to 5 1/16". Any type motor.

Write for free illustrated literature and details.

Specify Catalog No. A.

For Sale by Leading Jobbers

THE UNIVERSAL TOOL COMPANY, Inc., Detroit, Michigan



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Dealers—There's 100% profit in Orez, the best and cheapest anti-freezing solution.

Is non-acid and will not act on metal or rubber. Prevents formation of lime in water. Non-poisonous to skin.

TRADE **OREZ** MARK

ANTI-FREEZE SOLUTION

Shipped to you in crystal form in bags, which makes 50 gallons of solution. 50 gallons is the smallest quantity sold.

You knock the head out of an old barrel, pour in crystals, fill with water and stir until dissolved—ten minutes' work.

We pay the freight, pay for the barrel and furnish spigot.

100% PROFIT

50-gallon bag, $12.50—selling price 50c. per gallon—$25.00.

OREZ is zero spelt backward

ORDER NOW

Orez Manufacturing Company

WEST MIDDLETOWN, OHIO

BIG WINTER PROFITS in H-B Battery Charging

Look at these Profits

Receipts $157.50; Profit $139.50
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Receipts $62.00; Profit $58.00
H. M. Love & Co. Douglas, Ga.

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When other lines run low, cold weather means heavy starter service, short days mean excessive use of lights, and battery recharging brings biggest profits.

The H-B 500-Watt Battery Charger guarantees quick charging and large profits. Recharges 1 to 7 batteries at a time, with income of 75c to $1.50, and current cost of only 12c to 15c per battery.

$15 Puts This Money - Maker In Your Garage

Balance in 8 monthly payments of $20 each, which earnings should easily more than pay. Write for full particulars or send $15 initial payment with trial order. No risk. Absolute money-back guarantee.

Hobart Brothers Co.

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Air is Life!

Insufficiently inflated tires mean excessively inflated tire bills. Keeping your air pressure up means keeping your tire expense down.

Test your air pressure daily with a

Twitchell Air Gauge

and give your tires new air whenever they need it.

New Air Is Cheaper Than New Tires

At your dealer, or

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Price $1.25

For Motor Truck Upholstery

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TRUCK SPECIAL

Satisfactorily meets the scarcity-of-leather situation. Costs less than even the poorest split leather, but wears better.

Comes in 60-yard rolls 50 inches wide. Cuts in multiples without waste.

You should use it to save money.

You should use it to save leather.

It is waterproof, washable and its fine leather appearance and "feel" leave nothing to be desired.



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Works at Newburgh, N. Y., and Fairfield, Conn.

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World's Largest Makers of Leather Substitutes

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AUTOMOBILE FABRICS

A Fabric for Every Purpose for Open, Closed, and Convertible Bodies

DETROIT BATTERIES

last approximately six months longer than the average battery. They are about 15 per cent more powerful in proportion to size and cost.

This is why their sale is now increasing on an average of over 60% every four weeks—a record no other battery has ever approached.

DETROIT BATTERY CO., Detroit, Mich.
Eastern Branch, 68th and Broadway, New York City

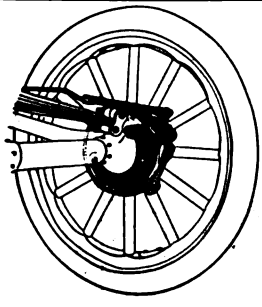
MR. DEALER

One dealer in a town of 3000 people installed Forty Sets of "The Improved Emergency Brakes" last March. Another dealer in a crossroads town installed twenty-five sets this summer.

All you need to do is to show a Ford Owner this Brake and he buys it.

Simple to install, no holes to drill. Why not cash in on this fast-selling accessory?

Write for our Disc. and Big Selling Plan.

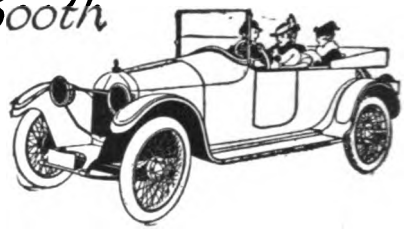


Retail price
$10.00 per Set

L. A. LEATHERS CO. BROOKVILLE, PA.

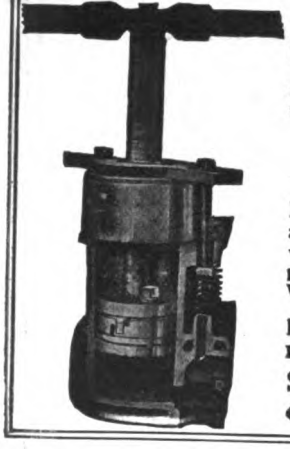
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In both the four-cylinder and the eight-cylinder models, Scripps-Booth combines the height of motor luxury with light weight, in a way never before achieved. The resulting comfort and economy have given Scripps-Booth a unique position with a highly desirable clientèle.



Four-cylinder Roadster.....$1250
Eight-cylinder Four-Pass..... 1425

Scripps-Booth Corporation
Detroit, Mich.



THE STORM & O'HAIR
Cylinder Reboring Machine

is adjustable and will rebore practically all makes of

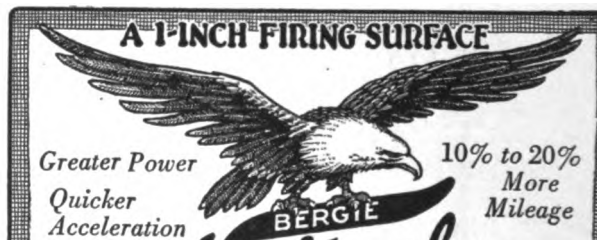
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It is simple, speedy and accurate and can be used by anyone familiar with tools.

Indispensable in any repair shop.
We furnish oversize pistons for all makes of motors.

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Greater Power
Quicker Acceleration
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The New Gasoline Hose.
Metal, Rubber and Fabric welded into one unit. Guaranteed for one year.
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Red Head

Priming Plugs

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$1.50 Everywhere.

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—a Dealer Opportunity

THE New Case Six is making a great impression among motor-wise people who appreciate good values. It is the "All-Feature Car," combining the features of the many fine cars in one supreme car.

Write today for full particulars regarding dealer plan.

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(Founded 1842)
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Cover every motoring need. From the small five-minute tube vulcanizer at $1 up to the 12-inch size at $12, there is a model for every requirement.

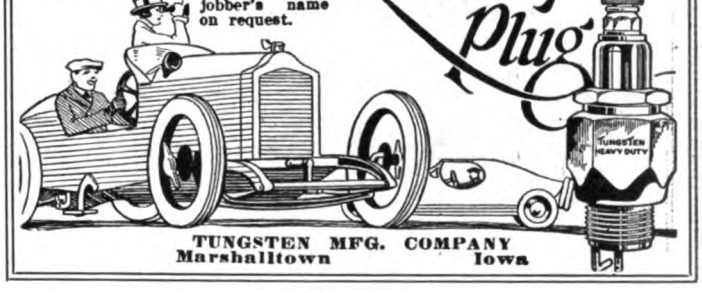
DEALERS—Why not tie up to the complete line? Order from your jobber to-day. If he can't supply you send us his name.

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SPARK PLUG
Always on the job

List of plug sizes for every car and your nearest jobber's name on request.

The Quality Plug



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THE industrial authority on all matters connected with the automotive industries.

The oldest weekly journal in the field.

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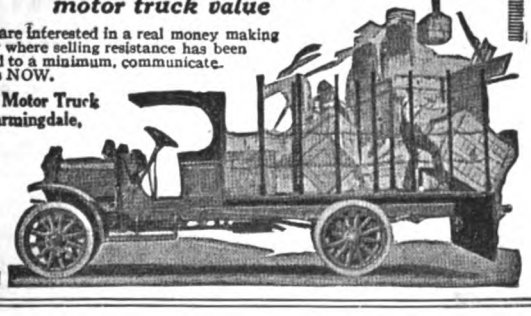
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1½ Ton Capacity

Has created the world's standard in motor truck value

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"Dependable Delivery"

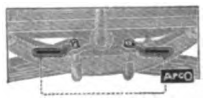
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Built to dominate the truck business in your territory—backed by the Bethlehem guarantee and a strong national advertising campaign. Is your territory covered?

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Without a doubt the most popular Accessory for Fords on the market

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Settle the MILEAGE PROBLEM—Use

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Ask us to send you a set of these, along with descriptive booklet and dealer proposition—if you are selling automobile accessories.

Dandy profits for dealers.

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"Your Motor's Best Friend"

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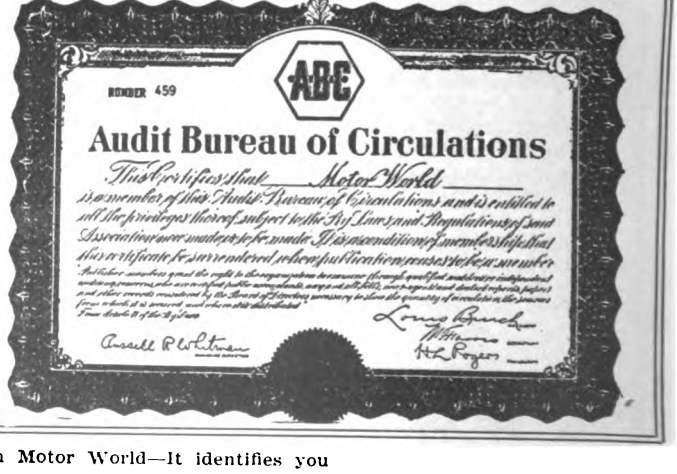
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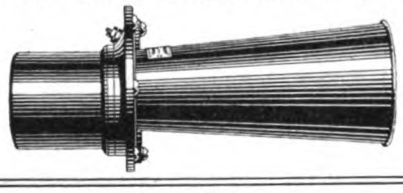
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Sparton Motorhorns—hand-operated and motor-driven.
Sparton Gasoline Vacuum System.
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The Sparks-Withington Co., Jackson, Mich., U. S. A.

(106)



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REES JACK
WORM GEAR DRIVE



$8.00

A worm-driven jack, with crank handle that folds to fit in tool box. The safest, most powerful, easiest handled lifting device ever made. No springs, pawls or ratchets. No slipping back, running out, dropping under the load. No crawling under the car.

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Firestone
GIANT TRUCK TIRES

Quality in Motor Trucks

It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

Our reputation for producing the most lasting truck is recognized by our many users.

We offer for your convenience the following sizes:

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2-ton 5-ton
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Every time you get a motorist to try DUTCH BRAND Products a permanent customer is assured.

DUTCH BRAND

Products comprise 27 motoring necessities, among which are 2-In-1 Tread Filler, Auto Puncture Cement, Vulcanising Cement, Radiator-Seal, Rubber-Seal, Carbocide Carbon Remover, Varni-Brite Auto Polish, Tire Talc, Tire Tape, etc. Send for illustrated catalog and order from your jobber.

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Manufacturers Dutch Brand Rubber Cements and Auto Chemical Specialties
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MOLINE KNIGHT

40 H.P. **$1575** **$1950** 50 H.P.

NO dealer, these days, handles a complete line unless he includes a Knight motored car. There is a DEMAND for them everywhere.

WRITE! Moline Automobile Company
East Moline, Ill.

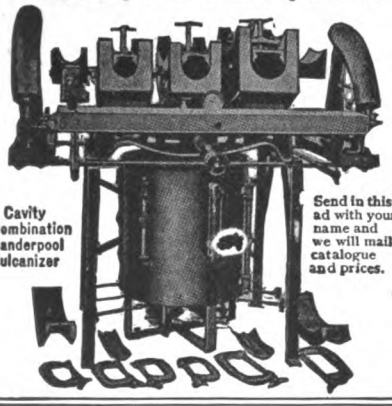
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SPRINGS IN STOCK FOR ALL CARS

QUALITY VULCAN AUTOMOBILE SPRINGS

JENKINS VULCAN SPRING COMPANY
Spring Service Unexcelled
90 000 Springs. 588 Types.

FACTORY BRANCHES:
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St. Louis, Mo.....1462 Chestnut St.
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Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



3 Cavity Combination Vanderpool Vulcanizer

Send in this ad with your name and we will mail catalogue and prices.

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

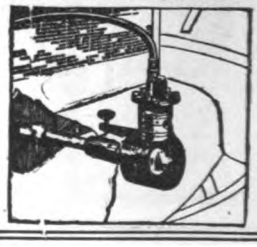
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960,000 PROSPECTS

WITH CARS BETWEEN **$800 and $1300**

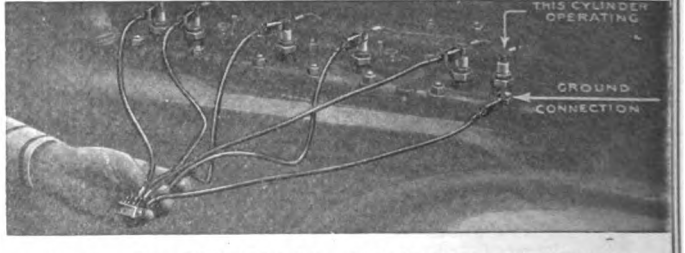
Now ready for Briscoe, Dodge, Chandler, Hudson, Overland, Reo, Stearns, Saxon 1916, and Studebaker cars. On and off in a jiffy without tools. **Not a rubber diaphragm device.** Write for details. Dealers, ask for discounts.



Price $10

DETROIT ACCESSORIES CORPORATION
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THE EDGERTON MOTOR TESTER
First Aid for All Motor Troubles

Such as faulty ignition, missing explosions from any cause, weak cylinders, leaking valves or pistons, faulty valve or ignition timing, bad carburetor adjustments, knocking in cylinders or bearings, carbon troubles, etc. Made in two models for any number of cylinders.

Write for literature or order today. **Prices $2.00 to $9.50**

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MOTOR CARS

114 inch wheel base, cantilever rear springs, full floating rear axle, vacuum gasoline system and factory equipment that includes a spotlight, a bumper, a motometer, an ignition lock, an extra rim and an extra tire.

37 H.P. motor—smooth running and quiet. Consistently gives 18 miles per gallon. Full streamline body—double curve design, slanting windshield.

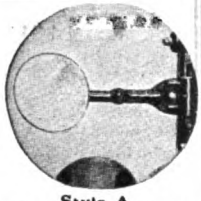
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$965

f. o. b. factory

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AUTO MIRRORS



Style A
For Straight Windshield on all Touring Cars



Style C
For Cabriolet, Brougham, Coupe, Sedan and Limousine

A Complete Standard Line. Every JOBBER and DEALER Interested in Profits Should Stock.

Send for illustrated catalog and sales proposition.

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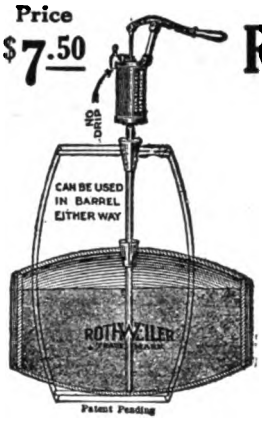
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Light Delivery, 1, 2, 3½ and 5 Ton

Write for full information on the Selden Line

DEALERS: Write or wire for desirable territory

Selden Truck Sales Company
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Rothweiler Pump

Empties a Barrel or Drum Completely

No Waste ***No Drip***

Good for Oil, Gasoline, Turpentine, Light Paint, etc.

Works Easily, Quickly and Efficiently

A Great Trouble Saver

ROTHWEILER & CO.
Seattle, Wash.



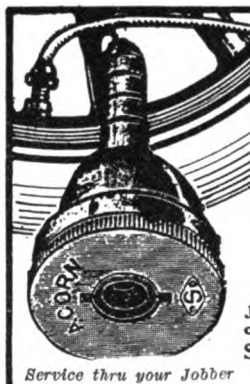
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The toughest, stretchiest non-tearable long-wearing non-leakable tubes made are the Woodworth Trouble Proof Tubes. Pure red rubber, antimony cured.

TROUBLE-PROOF TUBES

DEALERS have found these tubes splendid business builders. They are practically leak proof and cross plied to prevent tearing. Write today for good substantial proposition.

WOODWORTH MFG. CORPORATION
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A Quick, Air-Tight Connection.

THE ACORN PUMP CONNECTION

is pushed on over the valve and absolutely will not leak.
It saves time, inconvenience and trouble with screw threads.

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Acorn pump washers supplied in quantities for renewals.

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Service thru your Jobber means economy.

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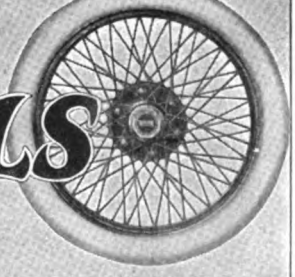


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Stamina
Service



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for SAFETY and STRENGTH
QUICK CHANGE
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WIRE WHEEL CORPORATION *of* AMERICA
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is the other name for
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Every live dealer in this country realizes that the only successful business is a profitable business.

We want to aid in making your business more profitable—and *we can do it.*

Clero Horns are manufactured by a big organization with unexcelled facilities for putting highest quality into large production, and thereby *insuring* low list prices, liberal discounts—and consequent good profits. We want every dealer who handles accessories to write us at once. We will send our irresistible profit making proposition by return mail. Don't put it off until a later time, but write for our "AA" dealer proposition *at once.*

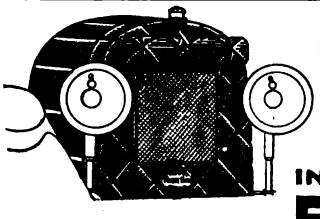
Most Liberal and Livable Discounts to the Trade

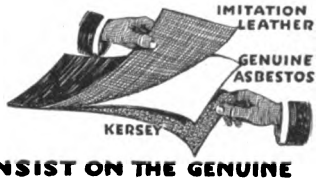
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Stock the fastest-selling winter accessory. Season now on. Live for sales 8 months out of 12.

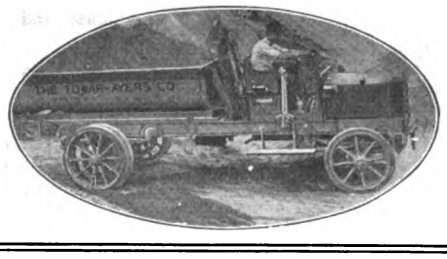
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Protected Foot Rail
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Sells big wherever introduced. One model fits all cars except Fords. Immediate action necessary to secure territory. Standard Model, $15. Utility Front Seat Heater, $10. Utility Jr. for Fords, $7.50. Ask for prices west of the Rockies.

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Mfrs. of the famous Utility Auto Specialties

IMMEDIATE DELIVERIES
UNITED TRUCKS
2-TON 3½-TON 4-TON 5-TON

Immediate deliveries mean *additional* profits! Wire us your requirements and for option on your territory.



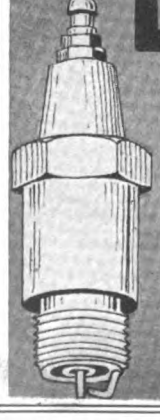
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Makers of Springs and Axles for Heavy Duty Service for more than Fifty Years

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POWER SPARK PLUG



Revolutionizes Ignition

A Spark Plug new in construction following closely all principles of latest electrical development. No porcelain to break. Compression tight, because it is "Built from the bottom up." The patented improvements develop more mileage and make it a non-fouling plug.

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The "Big Stick" That Brings Down Gasoline Expense

Up goes the price of gasoline! Maximum mileage is the big problem of the day! Solve it with the New Stromberg Carburetor.



The official world's records made by the New Stromberg in gasoline mileage prove that you need the New Stromberg on your car. Mail coupon for details of how the New Stromberg will reduce your gasoline bills.

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New STROMBERG Does it!
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ARE BUILT
TO FIT ANY MAKE OF CAR
"MILITARY SPORT MODEL"
Popular Among Officers

Schutte DISC WHEELS

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MARMON 34

1100 Pounds Lighter

AS for comfort, the Marmon design accomplishes with 136-inch wheelbase what would require a wheelbase 10 or 12 inches longer if the usual method of construction were followed.

NORDYKE & MARMON COMPANY
Established 1851.
INDIANAPOLIS

GLOBE TIRES GUARANTEED 6000 MILES
REDUCE THE OPERATING COST OF YOUR CAR

Long Mileage Tires MUST Be Hand Made

GLOBE RUBBER TIRE MANUFACTURING CO.
Executive Offices: 1851 Broadway, New York, Factory: Trenton, N.J.



The Original Double Arm SHOCK ABSORBER **W & C** For FORD CARS

Recommend W & C

to customers who merely ask for shock absorbers. W & C is what they mean. It insures the easiest riding Fords.

Ask your jobber's salesman or write us direct.

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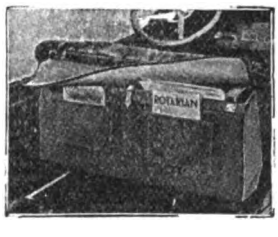
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Here is a luggage carrier that is good looking, well made, *most accessible,* and big enough to carry just what you want. It has special pockets for reading matter, clothes brushes, and other small articles. Near at hand always, and opened and closed with greatest ease, at the same time it affords perfect protection against dust or rain.

LUGGAGE CARRIER

can be attached to front seat of any car in 5 minutes and is of the greatest convenience in carrying wearing apparel, blankets, luncheon, books, etc., etc.

If not found with your local dealer send P. O. order or check for $3.50 and we will forward one to you.



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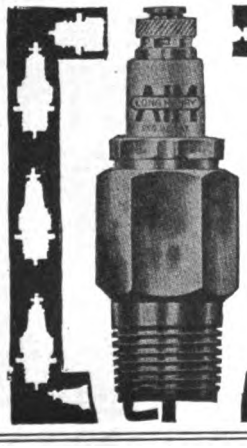
The AERMORE Exhaust Horn

Built on the pipe-organ principle. Gives a musical signal effective for long or short distances. Amply warns but does not frighten.

Cannot clog; easy to put on; has no up-keep expenses; lasts as long as the car. A winner for dealers.

The Fulton Co.
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LONG HENRY
Yours for Fords

Finished in Golden Glow and with special construction Long Henry sells himself. Long hex enables handy wrench operation and Long Henry's clearance keeps him clean and free from carbon. He goes twice as long without cleaning.

Auburn Ignition Mfg. Co.,
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The Pullmore Front Drive TRUCK is here

Union Arcade, Pittsburg, Penna.

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DEALERS!

Here is something you can install on every Ford in your territory at a good profit to yourself.

LITE-A-FORD

Price $2.50

DOES THREE THINGS WELL

Gives a bright driving light on low engine speed.
Acts as a variable dimmer giving any degree of light from bright to dim.
Prevents burning out lights from excess current at high engine speed.
A quick seller that stays sold by virtue of its faultless performance.
Write to-day for prices and terms.



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KIMBALL AUTO JACK
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CASSCO ENGINE-DRIVEN TIRE PUMP
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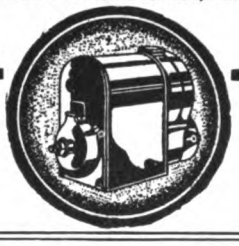
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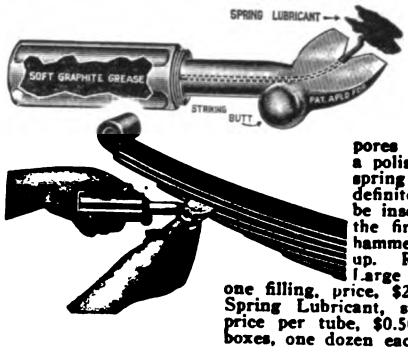
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Powerful
Durable
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Standard
Equipment for
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TOMAHAWK SPRING LUBRICATOR

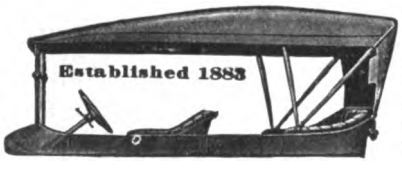


Inject Graphite Lubricant between the leaves of the springs and get 100% easier riding from your car, without squeaks and danger of breaking springs. The Graphite works into the pores of the steel and makes a polished bearing between each spring leaf. It lubricates indefinitely. The Tomahawk can be inserted with the pressure of the fingers or a light tap of a hammer, if body of car is jacked up. Regular size, price, $1.25. Large size to lubricate a car on one filling, price, $2.50. Tomahawk Graphite Spring Lubricant, sufficient for 3,000 miles, price per tube, $0.50, also packed in display boxes, one dozen each.

Charles W. Manzel Co., 310 Beard Ave., Buffalo, N. Y.

AUTO TOPS FOR ALL CARS

We can save you ⅓ the cost of a new Top



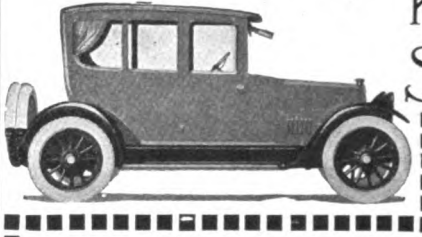
Write us at once. Ford Tops, One Man Tops, Seat Covers for all cars, Top Covering for any car, Radiator and Hood Covers, Auto Tires and Tubes, Wheels, Fenders, Racing Seats, etc.

Write us at once; let us teach you how to save money

BUOB & SCHEU

225 Webster St., Cincinnati, O.

The New
KISSELKAR
4 Passenger
Sedan



Inspect its exclusive Kissel features. The ALL-YEAR Top is entirely removable or all side windows may be lowered or raised. Mounted on the Hundred Point Six—the car of a Hundred Quality Features—with the new Kissel-built power plant. Write, wire or 'phone us to-day for Agency openings.

Kissel Motor Car Company
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KISSELKAR
EVERY INCH A CAR

Gemco
MILWAUKEE

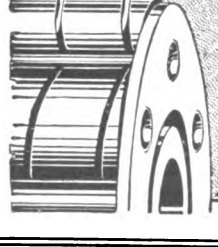
Make more money selling Gemco Bumpers for front and rear. Built on correct end-thrust principle. Diamond or channel bars—extra heavy, can't rust.

End Thrust Bumpers Ask your jobber or write direct.



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HYATT QUIET
-the logical bearing



for Motor Cars
Motor Trucks and
all Motor Vehicles

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"WESTCOTT"

"Westcott" is the original, adjustable "S" wrench—more convenient for motor work than any other wrench.

"Westcott" superiority is shown by its popularity with the best mechanics. It is used in the Ford factories and by many other automobile concerns.

Malleable Iron Handle—Forged Steel Jaw.

Sizes 6 to 14 in. (open from ¾ to 2 in.) Price per doz., $8.00 to $21.

Get them in your catalog

THE KEYSTONE MANUFACTURING CO.
Buffalo N. Y.

Bunting Bearing Bronze IN Cored Bars

Bunting Bearing Metal is standard today with both Manufacturer and Repairman. Is for sale by most any Jobber or can be purchased direct from us.

Ask for Pamphlet "Y." STOCK SIZES

Piece No.	Outside Diameter	Inside Diameter	Length	Approximate Weight
A	1	½	12	2
B	1⅛	⅝	12	3½
C	1¼	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2⅛	1⅛	12	10
G	2½	1¼	12	11½
H	2¾	1¾	12	12½
I	3	2	12	13½
J	3⅛	2⅛	12	15½
K	3½	2½	12	17
L	4	3	12	21
M	4½	3⅛	12	20

The Bunting Brass & Bronze Co., 717 Spencer Street Toledo, Ohio

Akron-Williams

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Used, sold and recommended by more than 60 leading tire companies.

Large variety of sizes—complete line of tools and equipment. Send for catalog.

THE WILLIAMS FOUNDRY & MACHINE CO.
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MANLY

America's New Quality Truck

1½-Ton and 2½-Ton Models

Constructionally Superior in 24 Different Particulars
DEALERS WRITE

MANLY MOTOR CORPORATION
FACTORY, WAUKEGAN, ILL.

S-M-C

When in doubt, get S-M-C

Trade Mark Registered, U. S. Pat. Off.

When in danger—you'll be glad you did. For S-M-C on Brake lining means Safety Made Certain; always—all ways.

S-M-C Set for Fords $1.50

$1.50 is complete with three proper lengths for Ford Transmission and all rivets required. At best dealers, or by mail postpaid from



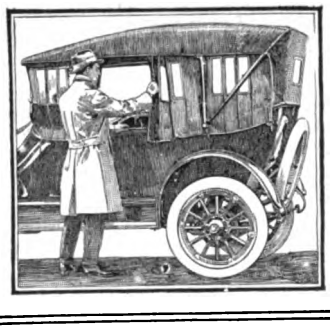
equips Ford car

STAYBESTOS MFG. CO.
The "Modern" Factory
5536 Lena Street Philadelphia, Pa.

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A Detail Difference

The Jiffy Curtains are real silk mohair. They can be handled easily and quickly. Right in place when you want them—stowed away when you don't.



Inter-State dealers have a lot to talk. Get our dealer's proposition.

$1000 to $1025
Effective December 1st, 1917

INTER-STATE MOTOR COMPANY
MUNCIE, INDIANA

MAKES EVERY ROAD A BOULEVARD

All Roads feel alike to those who ride on the Hartford SHOCK ABSORBER



Try it before you buy it. Satisfaction or money back

EDWARD V. HARTFORD, Inc., 142 Morgan Street JERSEY CITY, N. J.

Turn Waste Space And Spare Time Into Big Profits

Ask For Catalog No. 4.

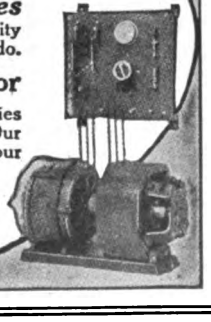
Recharging Batteries

offers garage men a bigger opportunity for profits than anything else they can do.

Our 3-G Motor Generator

charges from one to eight 6-volt batteries at one time. Anyone can operate it. Our 9-G Generator charges one to twenty-four batteries at a time.

There are over 8,000 of our vibrating type Battery Chargers in use. Write for particulars.



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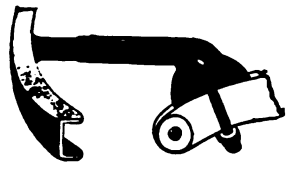
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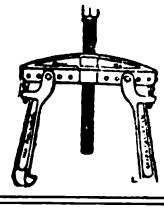
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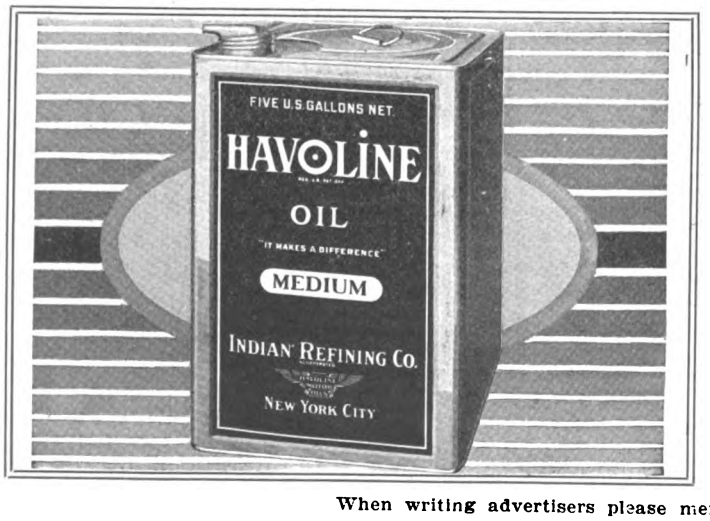
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31x4	13.75	15.25	3.25
32x4	14.25	15.75	3.35
33x4	14.75	16.00	3.40
34x4	15.50	16.50	3.60
35x4	15.75	17.00	3.75
36x4	16.50	18.00	4.00
34x4½	21.00	24.00	4.50
35x4½	21.50	25.00	4.50
36x4½	21.75	24.00	4.75
35x5	23.00	25.00	5.00
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30x3	7.00	2.00	33x4	14.50	3.50	36x4½	22.00	4.30
30x3½	8.75	2.30	34x4	15.00	3.65	37x4½	22.80	4.60
32x3½	10.50	2.45	35x4	15.85	3.75	35x5	23.10	4.65
34x3½	11.50	2.70	36x4	16.20	3.85	36x5	23.95	4.75
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30 x 3	6.70	7.05	36 x 4	17.10	17.95
30 x 3½	8.73	9.13	33 x 4½	19.02	19.98
31 x 3½	9.18	9.65	34 x 4½	19.63	20.65
32 x 3½	10.20	10.70	35 x 4½	20.55	21.55
34 x 3½	11.90	12.48	36 x 4½	20.88	21.95
31 x 4	13.38	14.00	37 x 4½	23.90	25.10
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30x3	6.95	7.95	36x4	14.95	16.00
30x3½	8.45	9.45	34x4½	17.45	19.45
32x3½	9.45	10.40	35x4½	17.95	19.95
31x4	11.95	13.10	36x4½	18.45	20.45
32x4	12.45	13.45	37x4	18.95	20.95
33x4	12.95	14.00	35x5	19.95	22.45
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31 x 4	5.00	37 x 4½	8.50
32 x 4	5.50	35 x 5	9.00
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Will add one live selling auto accessory to their present line. What have you to offer? We also act as Eastern representatives and want non-competing lines.

Address J. A. R., Post Office Box 1347, New York City.

FOR SALE

Garage, 60 x 165 feet, located in northwestern Pennsylvania, city of 100,000 population; best location in the city. Complete equipment. For further particulars address

J. T. POWELL

5864 Baum Blvd., PITTSBURGH, PA.

FOR SALE
Garage 85 x 100—2 Story

Running at full capacity, in city of 60,000 population, near New York. For further particulars address P. O. Box 317, Hoboken, N. J.

THE ONLY WAY TO SELL USED CARS
Via the American Method

F. C. BLACKMAN, Auctioneer

Gets the money and gets it quick. Ten years' successful selling. Get my method.

East Wood Street Paris, Ill.

Auto Mailing Lists

56,931 Auto Dealers, U. S.	$50.00 or	$2.50 per M.
8,884 Ford Dealers	18.50 or	3.00 per M.
38,453 Garages	50.00 or	2.50 per M.
36,431 Repairs	50.00 or	2.50 per M.
45,298 Supplies	60.00 or	2.50 per M.

1,136 Auto Supply Jobbers $4.00 complete list
57,703 Dealers, Garages, Supplies and Repairs in one list, no duplicates, $80.00 or $2.50 per M.

Have complete list Auto Owners and Ford Owners $2.00 per M. Further particulars.

Trade Circular Addressing Co.

166 W. Adams St., Chicago
Franklin 1182

OFFICE AND SALESROOM

PRINTING THAT PAYS

executed by
PRINTERS WHO KNOW

We have an Economy Message for you!

BEACON PRESS

141-145 West 36th St., New York City
Phone Greeley 856

Color & Half-tone
Printing
ADVERTISING COMPOSITION
Perfect Service
AFFERTON PRESS

Phone 9063 Chelsea 406-426 West 31st St.

Situation Wanted Advertising Rate

25 cents per line, minimum price $1.00 —a full remittance must be sent with each order.

POSITION WANTED:

Have filled positions from traveling sales representative to that of Branch Manager. Two years on the Pacific Coast. Two years in the Central West and two years in New York City. Will consider responsible position with Manufacturer or with Distributor. Services open soon. Age 39. Reliable firms needing a man of extensive automobile experience, executive ability and an organizer, address Box No. X224, care of MOTOR WORLD.

ATTENTION—Position seekers. Any man looking for a good connection in the motor car field should seriously consider giving this paper the opportunity to locate the desired job, especially at rates quoted, which are about one-half the classified rates. We will write your advertisement free of charge on receipt of full information as to your experience, age and any other information which will help us to make up for you an attractive advertisement. Situation expert. Classified Advertisement Department, Motor World.

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MACHINERY SECTION

MACHINERY
Modern Tools

PLANERS

29 x 29 x 5-ft. New Haven, two heads.
36 x 36 x 30-ft. Chandler, four heads.

SHAPERS

Two 16-in. Milwaukee, BRAND NEW, back-geared.
One 20-in. Milwaukee, BRAND NEW, back-geared.
20-in. G. & E. back-geared, used six months.

LATHES

9 x 4 Seneca Falls, with chuck, complete.
11 x 5 Seneca Falls, BRAND NEW, with chuck, complete.
18 x 6-ft. American, used six months.

OUR MOTTO
Lowest Prices

36 x 8 Lodge & Shipley, geared head, single pulley drive, complete with taper attach., quick-change gears and chuck.

RADIAL DRILLS

One 4-ft. Plain Brand New Mueller Gear Box Drive, Heavy Duty.
5-ft. Cincinnati Bickford S. P. D.

MILLERS

No. 1½ American BRAND NEW miller.
Three No. 3 Kempsmith Universal Brand New, complete.
One No. 2 Cincinnati Universal, used.

MACHINERY
Honest Business

TURRET LATHES

One 2 x 24 J. & L. geared sliding head, single pulley drive, chuck equipment.

AUTOMATICS

Two No. 52 National Acme, single pulley drive.
Two No. 53 National Acme, single pulley drive.
One No. 55 National Acme, single pulley drive.
Two No. 2 Brown & Sharpe automatics.

GRINDERS

No. 1 Wilmarth & Morman Universal, BRAND NEW.
One No. 190 Wells BRAND NEW cutter and reamer grinder.
Two No. 3 Modern Universal, BRAND NEW.

We own and can make delivery immediately from our New York Warehouse of the above list of machines
Send us list of your surplus used machinery. Send for Catalogue

MODERN MACHINERY EXCHANGE 52-54 Walker Street, New York City

Efficiency Reliability Service

In addition to the large stock of new tools always carried on hand for immediate shipment, we also have a nice assortment of high grade modern, slightly used Machines.

We mention a few—Send for our List.

Kempsmith No. 3 Plain Milling Machine, Universal Dividing Head, Vertical Att. Plain Vise.

No. 1-B Cincinnati Plain Milling Machine, 24 in. x 7 in. x 19 in., with Swivel Vise.

Ingersoll No. 3 Vertical Milling Machine.

12 in. x 36 in. Landis Plain Grinder with Pump.

10 in. x 42 in. Landis Universal Grinder with Internal Attachment and Pump.

Landis 16 in. x 48 in. Cylindrical Grinder with internal grinding attachments.

Prentice 18 in. x 8 ft. Geared Head Lathe. Quick Change, Single Pulley Drive, Compound Rest and all Regular Equipment, 1¼ in. Hollow Spindle, Swings 19 in.

(Two) Prentice 20 in. x 8 ft. Geared Head, Single Pulley Drive Engine Lathes, Quick Change Gear Box.

Prentice 26 in. x 10 ft. Geared Head Single Pulley Drive Engine Lathe, with Quick Change Gear Box, 2 in. Hollow Spindle, Comp. Rest.

SHAPERS
A FEW FOR EARLY DELIVERY

The best medium price shaper on the market.
Built in 16", 18" and 24", all back geared Crank Machine.

Quick Action Will Insure Securing a Bargain

THE OSBORNE & SEXTON MACHINERY CO.
COLUMBUS, OHIO

SOMEWHERE there is just the lathe or machine that you need for your shop. It's just as good as new—the price will save you many a dollar. Tell Motor World Clearing House Department just what you want and receive by return an advertisement that will carry your message to the man who wants to sell. Address

Classified Service Department
Motor World

Second Hand—Electric Motors
We make a specialty of, and have the largest stock of SECOND HAND electric MOTORS and GENERATORS in America, and buy and sell, rent, exchange and repair electrical machinery of all kinds.
GREGORY ELECTRIC COMPANY
16th and Lincoln Streets CHICAGO

WANTED MACHINERY

Any garage, machine or repair shop with machinery on hand that is out of service for one reason or another will find a ready market and secure good prices through Motor World's Classified Column.
Tell us what you have.

Classified Adv. Department Motor World

GARAGE MACHINERY
NEW & SECOND HAND
Bought and Sold
E. L. FRASER
139 No. 3rd St., Philadelphia, Pa.

MACHINERY AND MACHINE TOOLS

Traveling Cranes
Electric and Chain Hoists
Steam Hammers
Hydraulic Machinery

NEW AND SECOND-HAND
SAXER-CREIDER MACHINERY CO.
ERIE, PA.

Lathes and Drills
Shapers and Planers
Grinding Machinery
Punches and Shears

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Machinery

ALL KINDS OF MACHINERY

is worth today good money. What have you to sell?

Motor World Classified Column reaches the buyer. Try it for Results.

Machinery

ESTABLISHED 1876 WAREHOUSE & SIDINGS: 942 BEACH ST.

FRANK TOOMEY, Inc.

Iron and Wood Working Machinery, Steam and Electrical Equipment and Supplies.

Large Stock of New and Second-Hand Garage Equipment

Lathes	Gear Cutters	Milling Machines
Drills	Air Compressors	Grinders
Shapers	Motors—all sizes.	Hack Saws
Planers	Arbor Presses	Turret Lathes
	Large Presses	

MAIN OFFICE 127-131 N. THIRD ST. PHILADELPHIA, PENNA.

Machinery

CONTRACT WORK

Advertisers in This Section Have Facilities at Their Disposal to Take on Additional Work on Contracts. Automobile Specialties of All Kinds Manufactured on Contract Basis. Special Machinery, Press Work, Auto Machine Work, Foundry Work, Automatic Screw Machine Work.

CASTINGS
Malleable
Grey Iron

Over 50,000 square feet of machine shop and foundry in connection.

GIBBONS FOUNDRY & MACHINE COMPANY

Industrial Engineers

EXPERT TOOL AND DIE MAKERS

East 25th and Vale Streets, Des Moines, Iowa

WRITE PHONE WIRE

Lathe & Milling
Gear Cutting
Machine Parts

Designers

An organization of MERIT, Insuring you of PROMPT and EFFICIENT SERVICE.

SCREW MACHINE WORK

PROMPT DELIVERY

MURCOTT & COMPANY, Inc.

253 Broadway New York City

EXCELLENT FACILITIES FOR

METAL STAMPINGS

Dies, Tools, etc. Contract work solicited. Prompt delivery. Prices right.

FRANKFORD MACHINE CO., Inc.

4099 Frankford, Philadelphia, Pa.

LIGHT METAL STAMPINGS

Dies, Models and Machine Work.
Small Turret Lathe Work.
Large and Small Quantities.

JOHNSON MANUFACTURING CO.

103 North Front St. Philadelphia, Pa.

WANTED

METAL STAMPING AND PUNCH PRESS WORK

STANDARD METAL MFG. CO.

Chestnut, Jefferson & Malvern Sts. Newark, N. J.

FENDERS—HOODS—TANKS

All kinds of Metal Work made from blue prints, also Welding and Brazing.

AUTO SHEET METAL WORKS

617 Bloomfield Ave. BLOOMFIELD, N. J.

LET US PLACE YOUR CONTRACT WORK

We are Production and Contract Work Specialists

NATIONAL SALES SERVICE

Union Trust Bldg., WASHINGTON, D. C.

Pattern Work for Airplanes

The Curtiss Airplane Co. profits by our Pattern Department. Why not you? Specialists in wood or metal—20 years' experience. Good work done quickly.

The Newark Stamping and Foundry Co.

Plant No. 2, NEWARK, OHIO.

WE ARE EQUIPPED TO DO

Lathe, Milling Machine, Drill Press, Shaper and Welding Work in all branches

THE SHELLEY TOOL CO., Inc.

135 Broadway, Saranac Lake, N. Y.

Brass and Bronze Castings

also

Machining, Polishing, Plating and Pattern Work

John Thomson Press Co.

253 Broadway Dept. H New York

FACTORY: Long Island City

Special Machinery and Tools

Lathe, Milling Machine, Drill Press and Shaper work. Send samples or blue prints for estimates.

O. L. Bortz Machine & Tool Company

S. Water Street, GREENVILLE, PA.

Hundreds of machine shops are ready for Contract Work. Tell us your needs and we will find the shop that will handle the work for you.

MOTOR WORLD
CONTRACT WORK DEPARTMENT
239 West 39th Street, New York

Piston and Piston Rings

Any Quantities

Grinding in all branches

HOUPERT MACHINE COMPANY

353 W. 52nd Street, New York, N. Y.

Henry C. Griffin & Co., Inc.

PATTERN MAKERS

Wood Patterns. Metal Patterns.
Automobile Work a Specialty.
Models and Experimental Work.
143-145 VARICK STREET
Near Spring Street, NEW YORK.
Phone 4257-4258 Spring.

BRASS—BRONZE—ALUMINUM CASTINGS!

The original plant of the Republic Brass & Bronze Co. has been enlarged and improved to take care of five to six million pounds annually. Under new management and ample resources, this foundry is now in shape to take care of your work promptly. Expert attention in the above-named metals and alloys of all kinds is given for special work.

PRECISION CASTINGS CO., Inc., PONTIAC, MICH.

Under same management as the PRECISION CASTINGS CO., Inc., Syracuse, N. Y.

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The Shield of Quality Merchandise



Coupled with the actuating slogan of our sales policy

"FOR THE GOOD OF THE TRADE"

brings us to our EIGHTH YEAR of activities as Manufacturers, Distributors and Territorial Sales Agents of

Standard Accessories

We Own, Make and Market
"FAWSCO" BRANDS

Auto Crawlers
Ignition Wiring Assemblies
Lamp Electrifiers
Oil Cock Wrenches
Lennon Light Protectors
Red Seal Spark Plugs

We Distribute

American-Standard Ignition Cable
Connecticut Switches
C-S Electric Specialties
Eureka Valve Grinding Compound
Fitzgerald Mfg. Co., Gaskets, Etc.
Ideal Hose Clamps
Sootless Spark Plugs
Tungsol Auto Lamp Bulbs
Walden-Worcester Wrenches

J. H. FAW, Inc.
Specialists in Automobile Accessories
41 Warren St., New York
Branch: Atlanta, Ga.

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RADIUM LUMINOUS MATERIAL

illuminates

AUTOMOBILE GAUGES

and

AIRPLANE INSTRUMENTS

so they may be read in the dark

No Lights To Shine in Eyes



No Danger To Army Supply Trains

ECONOMICAL

LET US EXPERIMENT FOR YOU

RADIUM LUMINOUS MATERIAL CORPORATION

55 LIBERTY STREET NEW YORK

Increase your shop earnings with the

W. B. LATHE ATTACHMENT

FOR UNIVERSAL GRINDING

Quickly attached to the compound rest of a lathe and driven by an overhead drum, it makes possible the grinding with accuracy and speed of hardened mechanical parts.

The W. B. Grinder is superior to the direct connected electric type because—it is smaller in bulk with greater power, has large adjustable bearings and is entirely free from electrical trouble.

With this equipment all kinds of cylindrical and internal grinding can be done—such as wrist pins, pistons, knuckle bolts, thrust bearings, ball bearing cups, cones, piston rings, hardened transmission shafts, milling cutters, reamers, etc. With internal grinding spindle, it will grind holes in gears, ring gauges or other parts.



Cylinder Grinder



Price $60.00 F.O.B. San Jose.

SPECIFICATIONS

Spindle—Hardened and ground, tool steel taper bearings, 1⅛" diameter.
Bearings—Phosphor bronze adjustable bearings.
Pulley—2½" x 1¾" flanged, takes 1¼" belt.
Collets—Interchangeable wheel collets.
Countershaft—Tight and loose pulleys, 2" x 4"—drum 7" x 36".

ARTHUR T. BRITTON, 590 South 1st Street SAN JOSE, CAL.

Manufacturer of the W. B. Line

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NAILING A LIE—COLD!!

We have read letters from Chalmers Distributors in which they have stated that competitors were saying to present owners of Chalmers cars and to prospective buyers, generally, that the manufacture of Chalmers cars would be discontinued.

There are thirty (30) automobile companies recognized by the general trade that manufacture and sell Touring Cars, and Roadsters at retail prices between $1,100. and $1,500. We haven't heard that all of these companies or any one of them were going to discontinue production or quit business. Why then should the Chalmers, with a better car than many others in this class of 30 manufacturers, stop production?

WE Make a prophecy, and will authorize our Distributors to back it up with $200,000. of our money; that, the Chalmers Company under the Maxwell Management, will stand ahead of 15 of these companies in production in 1918, and the Chalmers Company will stand ahead of 20 of these companies in production in 1919. This doesn't look as though we expected to discontinue making Chalmers cars.

The reason some people are trying to disturb the present Chalmers owners is to scare them about service so as to get a better "trade in" on his Chalmers.

The reason for circulating such a story generally would be to prevent the prospective purchaser from inspecting a Chalmers car, because if a prospective buyer of an automobile will look at and ride in the present Chalmers models he will be very apt to buy one. It is the best car selling at $1365 that we know of.

This is one reason why Chalmers cars will continue to be made, not only in 1918, but in 1919, 1920 and other years.

Another reason is that the Maxwell organization has told the general public that Chalmers cars would be produced in larger quantities than ever before and we have a way of making good with the public on sales and production.

Walter E. Flanders

President, Chalmers & Maxwell Motor Companies.

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STANWAL BRAKE LINING AND CLUTCH FACINGS

STANWAL is impervious to oil, grease, gasoline, water or any foreign substance. It does not scratch the brake drums. It is noiseless under severe pressure. Stanwal operates smoothly and firmly and controls any car with power and precision.

OTHER STANWAL PRODUCTS

Multibestos Brake Lining and Clutch Facing
Tire Tapes
Stanwal Friction and Insulating Tapes
Splicing Compounds
Cable and Specification Tapes
Moulded Rubber Goods
Stanwal Matting
Stanwal Rubber Heels
Stanwal Fiber Soles

STANDARD WOVEN FABRIC CO.
WALPOLE, MASS.

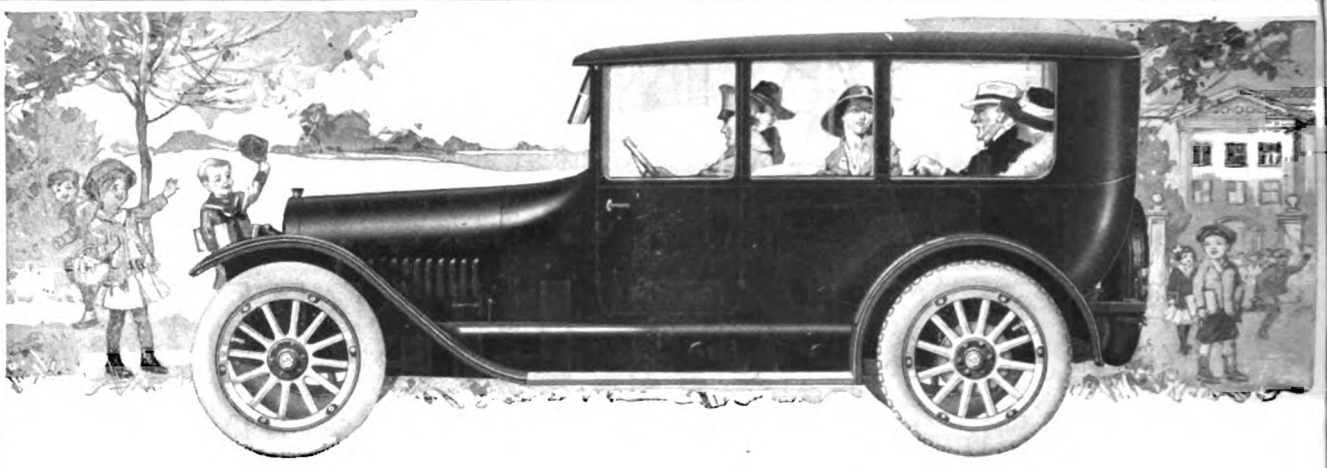
New York Branch and Export Office
1834 Broadway

Detroit Branch Office
306 New Telegraph Building

Chicago Branch Office
1430 Michigan Avenue

Philadelphia Branch Office
406 Colonial Trust Co. Building

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What Mitchell Dealers Offer

A Remarkable Six in Two Sizes, at Two Basic Prices, in 19 New-Style Bodies

A CAR evolved and perfected under a famous efficiency engineer — the pattern car of its class. A car built complete — chassis and body — in a model efficiency plant. In a factory built and equipped by experts to produce it at minimum cost.

The final result of a 14-year, world-wide experience with the Mitchell car in use.

A lifetime car, with oversize parts. With 440 parts built of toughened steel. With a wealth of Chrome-Vanadium. A car which has proved its ability to render 200,000 miles of service.

The only car with Bate shock-absorbing springs, which have never yet been broken.

An unusually complete car, with 31 features which many cars omit.

A car with 19 styles of distinctive bodies, exclusive to the Mitchell. All designed by famous experts for the Mitchell only. All of them built by able craftsmen in the Mitchell shops.

Cars which excel in luxury and beauty. All that we save by our new body plant has been added to finish, upholstery and trimming.

Five styles of convertible models, three types of sport cars. Open cars with many new ideas. Closed cars which mark the limit of luxury.

Prices below other like-class cars. A $1250 model with 40-horsepower motor and a 120-inch wheelbase.

A car of vast economy, supreme endurance, large mileage per gallon. A car in which extreme standards have reduced repair cost to the minimum.

A car of fast-growing prestige. The best advertised car in its class. A car whose advantages are known.

Buyers of fine cars—and dealers—should investigate the Mitchell. It offers many unique appeals.

MITCHELL MOTORS COMPANY, INC.

RACINE, WIS., U. S. A.

$1525

Mitchell — a roomy 7-passenger Six, with 127-inch wheelbase and a highly developed 48-horsepower motor.

Three-Passenger Roadster, $1490
Club Roadster, $1560
Sedan, $2275 — Cabriolet, $1960
Coupe, $2135—Club Sedan, $2185

Also Town Car and Limousine.

TWO SIZES

Mitchell Sixes

$1250

Mitchell Junior — a 2 or 5-passenger Six on similar lines, with 120-inch wheelbase and a 40-horsepower motor. ¼-inch smaller bore.

Club Roadster, $1280
Sedan, $1950—Coupe, $1850

All Prices f. o. b. Racine.

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MOTOR WORLD

for

DEALERS, JOBBERS AND GARAGEMEN

olume LIII
No. 11

New York, December 12, 1917

Ten cents a copy
Two dollars a year



The Greatest Tire Story Ever Told

The Big 1918 Miller Advertising Campaign Will Tell It to the Tire Buying World

A big smashing advertising campaign that will make thousands want Miller Tires will begin soon.

It will tell a story about Miller Tires that will startle the entire realm of tire buyers.

No tire manufacturer has the story to tell that Miller has. And Miller is going to tell that story as no tire story has ever been told before.

It will mean universal acceptance for Miller Tires. It will do more than that—it will make tire buyers ask for Miller and accept no other.

The Miller exclusive agency proposition will make them come to you for Miller Tires. You get all the business. You control it. And your price will be Miller price, for you have no price cutting Miller dealer to contend against.

A tire that sets new tire standards, an agency proposition that brings you all the business, an advertising campaign that SELLS tires—that's what Miller offers its dealers for 1918. Be with a "winner."

The MILLER RUBBER COMPANY
Akron, Ohio

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UTILITY Protected Foot Rail HEATER

Dominates Automobile Row

Last year's sales, last year's service, last year's success, a more extensive advertising campaign, a small stock required because of a single standard model, simple and efficient installation, attractive appearance, year-'round usefulness, and a consumer demand increasing in leaps and bounds from day to day have put UTILITY Protected Heaters in the lead on the country's miles of Automobile Row.

Dealers—Your jobber's choice is his recommendation to you. 178 more jobbers have added UTILITY Protected Heaters to their lists this year. And before they did it they were satisfied that UTILITY Protected Heaters sell.

Watch for the Gold Plated UTILITY Protected Heater in the Anderson Six at the Shows



Order from your jobber today. The low price is due to daily increasing production.

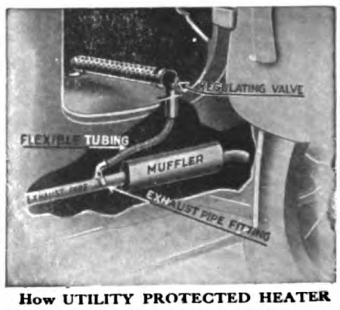
JOBBERS not already handling UTILITY Protected Heaters, write for our interesting offer.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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Business Department
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Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
S. T. Williams

Branch Offices
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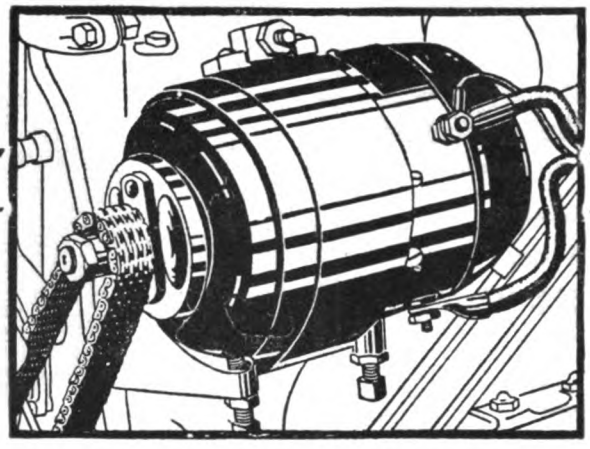
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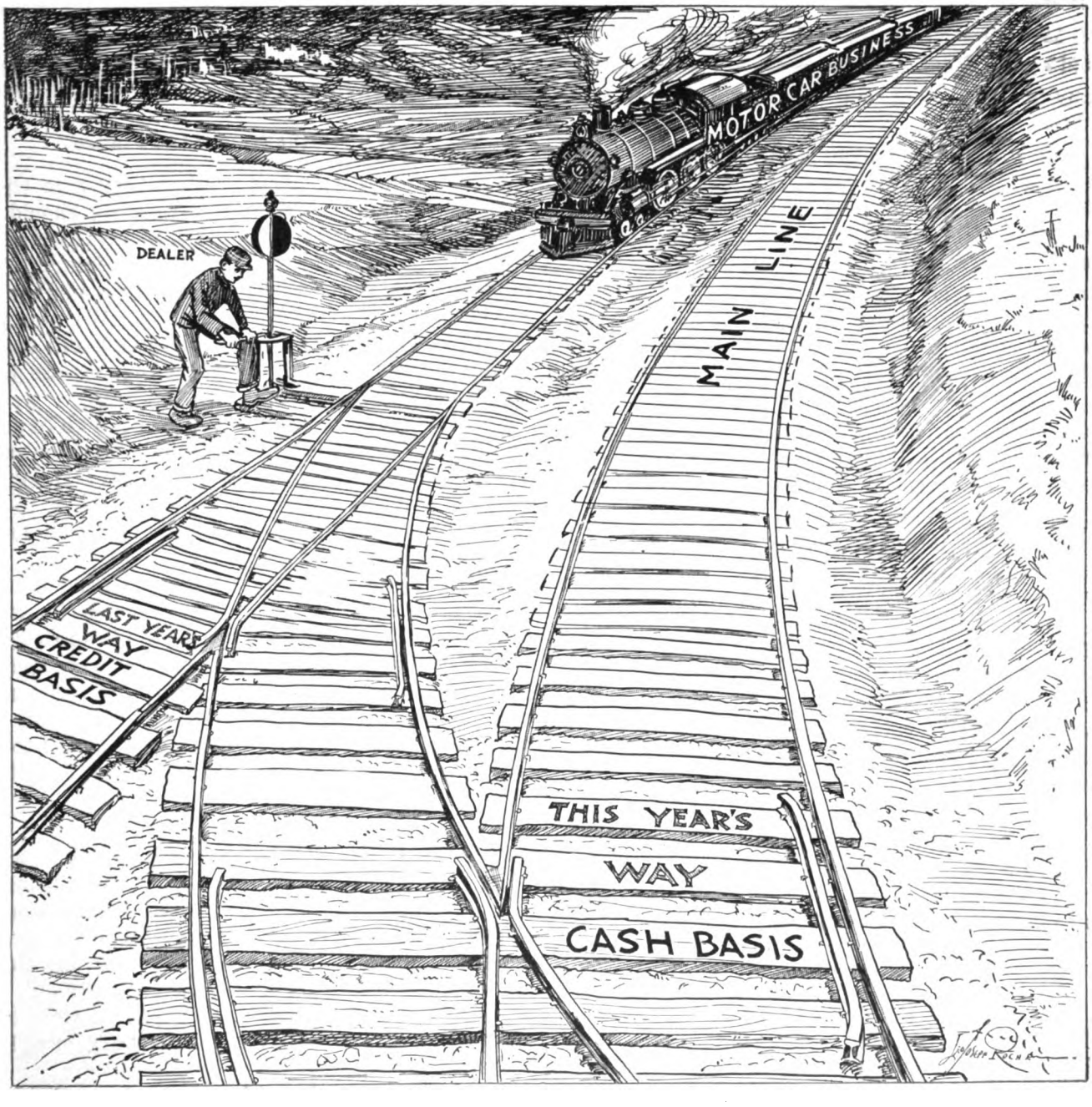
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIII | New York, U. S. A., Wednesday, December 12, 1917 | No. 11

Get on the Main Line



Have You Read the Story on the Two Following Pages?

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Get the Cash

Put Your Business on a Cash Basis if you can do so without causing any unfavorable results

Read This Page

THERE is in the dealer and garage trade a movement toward putting business on a cash basis. It merits your attention.

Can you put your business on a cash basis?

Would you benefit by it, or not?

Many have benefited by it and the chances are you would too.

A cash business is a nice, clean business in those trades where it can be worked out. There seem to be plenty of reasons why the cash basis is the right basis in this trade, and also why it is desirable now above all other times.

Theoretically the elimination of credit restricts business, but this will not apply to any great degree in the motor trade.

Little Need for Credit

Credit is a necessity in business transactions between business houses, but there is not this same necessity for credit in the relations between business houses and retail customers.

For one thing, the more cash business you can do the less need be your working capital. For instance: If you do a business of $10,000 a month and get cash for it all, you can *theoretically* operate on a capital of $10,000. But if half this $10,000 of business is cash and half 30 days' credit, you are obliged to have an additional $5,000 to carry the credit half. This makes your needed capital $15,000. Every time you extend credit you make necessary more working capital.

In order to carry on a business which has outgrown its capital, or to expand a business you must get additional capital. You can bring it in from the outside, by issuing stock, taking a partner or some such plan, or you may get it from your customers by getting cash for your goods.

Figure It Out Yourself

But if you add $10,000 in stock to a capital of $10,000 you are then under obligation to pay interest, or dividends, on $20,000, whereas if you convert the $10,000 extra into cash and use only $3,000 of it you are under obligations to pay interest on only $13,000. Furthermore, no matter what may generally be thought on this subject by the public, the average man should not in these times be extending himself too far in the matter of credit. People should not be going too deeply into debt.

Debt a Mortgage on One's Future

A debt is nothing more nor less than a mortgage on a man's future, and at this time we should not mortgage our futures unless that mortgage tends to secure for us greater security in the future. This mortgage for greater security is illustrated by the purchase of Liberty Bonds on time. We mortgage our futures to buy the bonds, but these bonds are for making our nation secure. Therefore, we are justified in mortgaging ourselves in this way.

But it is not economically right for a man to get in too deep in wrong ways. He should not buy ice cream sodas unless he can pay cash for them. He should not mortgage his future for the pleasures of to-day, which are passed and gone instantly and leave only a financial obligation.

This does not mean that the man should not buy ice cream sodas. He should buy them if he wants them. Otherwise he will break down his spirit under the strain of excessive economy. He will become less valuable to the nation as a factor in that civic enterprise which is needed for the success of our war enterprise. But the man should have the cash to pay for the ice cream sodas else he should not buy them.

Should Not Buy Bread on Time

However, if the man is so constituted that an ice cream soda is essential to his physical well-being he is justified in buying it on time, just the same as he is justified in buying clothing and bread on time if he finds credit necessary. He should buy the things he must have no matter what basis he buys on.

But—he should not buy even bread on time if he can possibly get the cash to pay on delivery, or at least on a weekly basis.

You should remember this: No trade can be at its best if it is unduly filled with credit. The flow of

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money must be maintained. That being true, remember this: The flow of money begins at the consumer. When a man buys a horn and doesn't pay cash the flow of money doesn't begin. Then the dealer has to hold up on the jobber, the jobber has to hold back on the manufacturer, and the manufacturer has to hold back on the materials people. A chain of credit is created.

To make the trade flexible there must be a certain amount of cash, and at this time especially. In order that there may be a good flow of cash it must first be pried loose from the consumer. Then the dealer and jobber and the others have a prospect of meeting their obligations without undue effort.

Furthermore, it is costing you more now to do business than it used to. The price of labor has gone up, materials cost more, all overhead is greater.

If it costs you more to do business you need more capital than you have been using. Where are you going to get it? Unless you bring in additional capital your only alternative is to get the capital from your customers—and this you may do by putting your business on a cash basis.

Capital Flows in a Circle

The flow of capital begins at any one point and goes in a circle. The consumer, or retail buyer, gets his money from manufacturing and merchandising enterprises. He gives it back to other manufacturing and merchandising enterprises. And it keeps going around and around in a chain without stopping. When there is a stoppage at one point the effect is ultimately felt clear around the circle. Therefore, if the buyer at retail is slow, this slowness—if persisted in—would in the end fall back upon himself as a restriction of business. The buyer might lose his employment or his income might be restricted.

In granting retail credits the risk is greater than in the credits granted by one business house to another. The retail buyer has fewer tangible assets than has a business house. He may disappear over night, something a business house is seldom able to do. Furthermore, you have not the knowledge of your customers' standing that your jobber or factory has of you. Retail credits seldom get the searching inquiry that business credits receive.

At this time especially the dealer and garageman should give attention to this matter of cash and credit. In case a dealer does not decide to go on a strictly cash basis he should at least inspect his credits and shorten the terms. He should restrict within the limits of safety. He should have no long overdue bills outstanding. In case he changes he should:

1—*Go on a strictly cash basis.*

2—*Demand cash for all transient trade and cash by the tenth of the following month from all regular customers. No account should run longer than that.*

3—*Use coupon books. These are sold at a discount of 2 per cent generally and add to the concern's working capital.*

Send This Letter to Your Customers

You wish to assist the business world, we are sure, in keeping things running on an even keel. This will be best for you, and for us, and for the nation as a whole.

If business can be kept going at its greatest efficiency prices will remain more stable, money will flow to and fro between buyers and sellers and business will run along in a pretty even way.

We have investigated our business from many angles. We have considered the advisability of raising prices, of changing our organization in various ways, and have concluded that the raising of prices is something we should not do except as a last resort.

We have found, however, that our expenses are greater than ever before and that we are working our capital to the limit. Adding capital would only serve to make our expenses more.

But we can make conditions much better if we may alter our credit business. If we may do without the accounting necessary when our sales are on credit it will mean a great deal to us in our effort to maintain our past service at present prices.

This is not a reflection on the class of credit we have had. It has been good and we have been glad to have it, but every time we charge up a dollar on our books it costs us money. Instead of asking you to pay higher prices we are going to ask you to pay cash at the time you buy.

This new plan will become effective January 1. We are sure you appreciate our object and will be glad to co-operate with us.

We appreciate your patronage of the past and hope it will be continued.

Very truly yours,

In case the dealer lets big and unsafe credits pile up upon himself he does three wrongs:

1—*He wrongs himself.* He makes it possible for pressure from jobber and manufacturer to hurt him.

2—*He wrongs the customer.* He makes it possible for the customer to extend himself further than he ought and thereby become in danger of financial disaster.

3—*He wrongs the nation.* He causes the individual's future, both that of the buyer and seller, to be so mortgaged and encumbered that the individual is not able to play an efficient part in the economic progress of the country, which is a prime essential at this time.

Dealers in many sections are switching over to a cash basis. In Ithaca, N. Y., for instance, thirteen of them ran a blanket newspaper advertisement stating their new plan.

Individual dealers everywhere are switching over.

One manufacturer is sending to 10,000 dealers a booklet advising a switch-over to a cash basis.

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Ohio Association Makes Good Start

Gets Pledges of $14,500 and Plans to Secure a Commissioner to Put Organization on Its Feet

COLUMBUS, OHIO, Dec. 6.—The Ohio Automobile Trade Association has the best chance for a good future that it has ever had. It now looks as though it might amount to something. Heretofore it has been a very weak organization.

Yesterday at a convention in the Hotel Virginia in this city $14,500 was subscribed for a year's active work, new officers were chosen and a real manager is to be hired to steer the ship and make things go.

The principal needs of the organization have been met. It needed money and management, without which membership and growth were impossible. The money subscribed will provide a paid manager, the new officers are active men and the future looks bright. A real campaign has been outlined and the indications seem to be that it will progress far beyond the embryo stage.

It is planned to work hard between now and the end of January and at that time to have another convention of what is practically a new association. It is believed that at that time there can be from 200 to 500 tradesmen at the meeting and that the membership will embrace the best people in the state.

Hope for Greater Membership

Heretofore the membership has been made up of a few of the larger dealers in one or two cities and a straggling membership from numerous small towns. The membership was not representative of the state trade, but it is hoped that it soon will be.

The Cleveland trade is well organized. Cleveland is the leading city in the state, yet none of the Cleveland dealers were at the convention and were not affiliated with the movement. Efforts are to be made to get every city in the state interested in the work. This time the attempt is to be made to get the best class of the trade in first and to add to it rather than to accept memberships from almost any old source possible.

The new plan seems about the best that has been tried in any state. Other states undoubtedly will be interested in Ohio's work of the near future.

The Officers

PRESIDENT
A. E. MITZEL
Canton Motor Car Co., Canton

FIRST VICE-PRESIDENT
FRED SCHMIDT
Miami Valley Auto Co., Dayton

SECOND VICE-PRESIDENT
M. C. TOOMEY
S. Toomey & Sons, Canal Dover

DIRECTORS
F. E. AVERY
F. E. Avery & Son, Columbus

VICTOR MOON
Toledo Rubber Co., Toledo

J. R. NOECKER
Noecker Buick Co., Circleville

HOWARD WILEY
Springfield Motor Car Co., Springfield

J. H. MCGRAW
J. H. McGraw & Sons, Bellaire

ANDREW AUBLE
Akron Garage & Auto Co., Akron

W. L. DURHAMER
Fen Far Co., Cleveland

C. E. SCHMITT
West Side Motor Co., Hamilton

This week's convention was the third held by the Ohio association. It had quite a membership when it organized two years ago, but its second meeting, a year ago, was not at all successful.

Vote Support to the War

This time some adverse sentiment was aroused because of the tone of one of the letters sent out calling the meeting, and this probably kept a few people away. The letter, in endeavoring to call the trade's attention to the need for a study of war-time business conditions, sounded rather unpatriotic. So, while the motive of the letter writer was not at all unpatriotic the letter was so interpreted.

One of the first things the convention did was to pass a resolution expressing confidence in the Government and volunteering the Ohio association's support in war work. Also, an additional resolution was passed, after a talk by an oil man, pledging support to the fuel administrator. The members present agreed to aid in eliminating fuel waste.

Having officially put itself on record as being just as patriotic as any one else, the convention wondered what to do next. This was Tuesday morning. The meeting was handicapped by lack of any set program. The crowd was there but it didn't know what for. No subjects had been assigned for discussion and there was nothing in the way of a program except the names of some of the town's leading men printed on a small brown 4-page program. Some of these men showed up and some didn't, and those that did did not generally say much that was of any business benefit to the trade in this present trying time.

Jobbers Started Things

Things dragged along like this all day Tuesday and for that portion of Wednesday morning that was devoted to the business session. Then, some of the leading dealers present and various jobbers from Columbus and other cities began to insist that it was time to make something out of the association or else give it a painless and peaceful death and have an interment forthwith.

About noon Commissioner William M. Webster of the National Association of Automobile Accessory Jobbers arrived from Chicago, as one of the invited speakers. He was asked if he would not take the chair and run the meeting as a meeting should be run—and as Webster knows how.

He did. First Webster made a real organization speech. Then, one of the jobbers said he would be willing to back the movement for one year to the extent of $500 if necessary in order that an effort

How to Conserve Oil

The Ohio association resolved to aid the fuel administrator in cutting out gasoline and oil waste, by not running motors idle, by advising owners not to, by not using gas for washing parts, and by other similar means.

Andrew Auble, Akron, told how he has been saving oil waste. When he takes dirty oil from crankcases and gear cases he puts it into a can until he has 3 or 4 gallons.

Then he puts in a gallon of water. He heats the can on a hot plate until it is warm enough to permit the sediment to drop down into the water.

Then he puts in enough water to drain off the sediment and has several gallons of good oil.

Try it!

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Those Who Gave the $14,500

$500

Dine-De Weese Co. .....Canton, O.
Champion Spark Plug Co.....Toledo
Justus & Parker Co. .....Columbus
Pennsylvania Rubber & Supply Co..Cleveland
Buckeye Tire & Supply Co.....Columbus
J. H. & F. A. Sells.....Columbus
Crowthers Auto Sales Co.....Coshocton
Ohio Saxon Co. .....Columbus
Griswold-Sohl Co. .....Columbus
Henderson Auto Supply Co.....Youngstown
Toledo Rubber Co. .....Toledo
West Side Motor Co.....Hamilton
Peters-Herron Dash Co.....Columbus
J. P. Gordon Co.....Columbus
Columbus Varnish Co. .....Columbus
I. J. Cooper Rubber Co.....Cincinnati
York Supply Co.....Greenville
G. W. Shroyer & Co.....Dayton
Fen-Far Co. .....Cleveland
Warren Refining & Chemical Co....Cleveland
Robert Toledo Co. .....Toledo
Akron Auto Garage Co.....Akron
Union Supply Co. .....Toledo
Toledo Tire & Supply Co.....Toledo

$200

Kaiser Motor Car Co.....Columbus
Oscar Lear Motor Co.....Columbus
F. E. Avery & Son.....Columbus
Canton Motor Car Co.....Canton

$100

Hilane Garage & Machine Co.....Columbus
J. H. McGraw & Sons .....Bellaire
E. I. Lewis.....Bucyrus
Capital Motor Car Co.....Columbus
Noecker Buick Co.....Circleville
Jones Auto Co. .....Akron
Columbus Motor Sales Co.....Columbus
Springfield Motor Car Co.....Springfield
A. O. Wood Motor Co.....Akron
R. P. Wahrer .....Wapokoneta
Charles M. Cole .....Ada
Harry Single.....Cincinnati
Winders Motor Sales Co.....Columbus
Miami Valley Auto Co.....Dayton
E. W. Far, Fen-Far Co.....Cleveland
Dayton Automobile Trade Assn.....Dayton
Columbus Automobile Trade Assn..Columbus

might be made to build a real association. He was rapidly followed by other jobbers, dealers and garagemen until $14,500 had been raised.

Officers were elected. A. E. Mitzel, of the Canton Motor Car Co., Canton, a dealer, was made president. Mitzel is a forceful man and that evening called the new officers and directors together and began to work. Plans were outlined and things started off well.

At the end of the directors' meeting —which also ended the convention—the plan stood thus: Active work is to be done in each of Ohio's 88 counties, a leader is to be secured in each county, a manager is to be found as soon as possible, headquarters are to be opened and maintained and a strong membership is to be built between now and another meeting to be held in January.

Aside from this re-organization work there was not a great deal of importance that happened.

One of the first things the Ohio association must work for is a "clean house," said President-elect Mitzel at the banquet Wednesday evening. He stated that clean places of business are imperative, that shops, garages and salesrooms must be scrubbed and scoured, that business places must be fit for women to enter, and that the trade must become a credit to the business world.

One of the aids in building the association is to be the salesmen of the jobbing houses in Ohio. The jobbers have pledged themselves to enlist their men in the work and good results are anticipated.

Don't Buy Special Gas

Don't ask for special gasoline, urged B. A. Mathews of the Standard Oil Co. He said most people use ordinary gasoline and that demanding special gasoline serves only to decrease by a big percentage the output of ordinary gasoline.

Harmony to Prevail

There is to be no fight with the automobile clubs in Ohio, stated President-elect Mitzel, so long as he is president. And he insisted that he would be president or quit. Harmony is essential, he stated, and anything else quite silly.

Webster a Member

By vote of the association Commissioner William M. Webster of the National Association of Automobile Accessory Jobbers was made an associate member.

May Have Motor Commission

That the Ohio dealers should ask the state to name a commission to rule on headlight lenses was recommended by State Automobile Registrar W. A. McCurdy.

There is a headlight law but it is not enforced. Its enactment caused a temporary lens business but it has fallen off and many dealers have unused stocks because the law is not enforced and no one seems to know just what lens comes within the law.

McCurdy said there are 3477 dealers registered in Ohio and that in the list are many laundries, real estate companies and others. He suggested that the dealers aid the attorney general in defining a dealer.

War Tax Rebates

While Burr Williamson, Internal Revenue Collector, Columbus, was talking to the meeting of the Ohio association, the question of rebates on the Oct. 4 floor tax of 1½ per cent came up.

He said in case a dealer had any question as to whether he was entitled to rebate the proper procedure was to get from the collector's office a rebate application blank and apply for a rebate, after which the case would be sifted.

The New York office states that the question of who owned the cars on Oct. 4 is what determines the tax, and that it does not matter whether any of the taxed cars were sold at retail. In case, because of the method of handling the wholesale and retail departments, there is any doubt in a dealer's mind he should apply to the United States Internal Revenue Collector in his district, secure a blank and apply for a rebate.

Dealers Net 4 Per Cent

Comparison of the cost of doing business by several dealers at a side session of the convention revealed that most of them, who keep costs, are netting about 4 per cent on the gross per year. Here are a few figures:

Dealer No. 1 .....4¼
No. 2 4
No. 3 4
No. 4 .....3½
No. 5 1915.....6¼
1916.....5
1917.....4-5

Dealers' War Resolution

Whereas, The members of the Ohio Automobile Trade Association wish to take a full and active part in prosecuting the war in which America is engaged for Democracy, and

Whereas, They stand ready to make any sacrifice necessary for the successful termination of the war, be it

Resolved, That the Ohio Automobile Trades Association, assembled this 4th day of December in session in Columbus, does volunteer its full and hearty support to the War and Navy Departments, the War Industries Board and the Automobile Industries Committee and expresses its willingness to co-operate and support the Government in every possible way for the winning of the war.

What Is a Dealer?

Ohio Association Makes Definition

Whereas, The Ohio State Registrar of Automobiles has called the attention of the Ohio Automobile Trades Association to the fact that the State is losing thousands of dollars annually through failure of existing laws to protect the dealers' license;

Whereas, The list as published by the state registrar of licensed dealers is used regularly as a trade guide for people engaged in the manufacture and sale of automobiles and kindred lines;

Whereas, Because of the failure of the law to clearly define what constitutes an automobile dealer, there is much fraud practiced on both the state and the regular dealer, and as the state is losing annually thousands of dollars through this practice, be it

Resolved, That the Attorney General and Secretary of State be requested to construe the application for dealers' license through this definition of a dealer, namely:

Any PERSON, FIRM or CORPORATION engaged in buying and selling motor vehicles as a regular business for profit, shall be a dealer.

War Eats

And the Ohio association had a war banquet. It was served about 7 p. m. and took the place of the regular supper-time meal. It cost $1. It was served expeditiously. It was one of the most pleasant banquets to sit at that ever was held. Here is what they ate:

Soup
Celery Olives Graham Rolls
Chicken and Stuffing
Potato Cranberry Sauce
Ice Cream Cake Coffee

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Sell Winter Clothing

With the advent of cold weather everybody wants—or most surely needs — warm clothing for motoring. There is health in winter driving, but not unless the motorist is warmly clothed.

According to the size of your town you should secure samples and a catalog. From this let your customers make selections. It isn't always necessary to have a big stock in order to sell clothing although that is, of course, the best way to get the business.



1 — *Gentleman's reversible coat; leather on one side and gabardine or tweed on the other*; $80.



2—*Raccoon coat*; $275.



3—*Any-day coat, in tweeds and heathers; convertible collar and raglan sleeves. Inverted pleat at the back*; $32.50 *and* $35.



7 — *Angora wool muffler*; $2.50 *to* $10



4—*Angora wool vest; in all colors*: $7.50 *to* $10



5—*Ballymead; can be had in heather, tweed and frieze*; $22.50 *to* $35



6—*Double breasted chauffeur's ulster of Irish frieze with convertible collar*; $32.50



9 — *Sheep-lined mit*; $6 *and* $7.50



8—*Gentleman's tweed hat*; $2.50 *and* $3.50

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Cold Weather Profits

Clothing is but one of the ways in which the dealer can cash in on the opportunities that the weather man has left at the salesroom door.

For example, see the aviator's helmet on this page. Who wouldn't like that any cold day when the biting winds blow? And gloves? And sweaters?

The clothing on these pages is loaned by the Auto Supply Co., Columbus Circle, New York City, which has been successful in building a clothing department. One of its principal stepping stones to success has been its window displays. It now has a clothing department with a manager.



10—*Gentleman's double-breasted ulster made in imported mixtures; belted; convertible collar*; $40 *to* $52.50



11—*Showing back of No. 3*



12—*Irish frieze ulster with Hudson seal or beaver collar belted*; $55



13 — *Silk muffler, obtainable in all colors and combinations;* $6 *to* $10



14—*Same as No. 10*



15—*Showing inside of No. 1*



16—*Heavy shaker knit sweater; roll collar; in all colors*; $11.50



17 — *Capeskin driving glove; black or tan;* $2.75 *and* $3.75



18—*Aviator's leather helmet; chamois and fur lined*; $8.50 *to* $12.50

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Things You Have to Consider When You Sell a Used Truck

In a Passenger Car the Big Thing Is Looks

THE first thing a passenger car dealer has to learn when he starts to handle used trucks is that he must consider everything on a utility basis, for his prospective customers will not want to know how they and their families are going to look, in the truck, speeding down the boulevard. What they will want to know is how much they must invest, and what that investment will return to them. A passenger car may be sold on a good coat of paint, and smooth talk. A truck can only be sold on a dollar per dollar basis. It is purely a business transaction.

Appearance counts for little in a used truck—providing the poor appearance does not extend into the mechanical parts. Bent fenders may be straightened and damaged bodies satisfactorily repaired by mechanics that would never qualify for passenger car work. But the mechanical condition does count, and for judging this, the most competent expert possible should be secured.

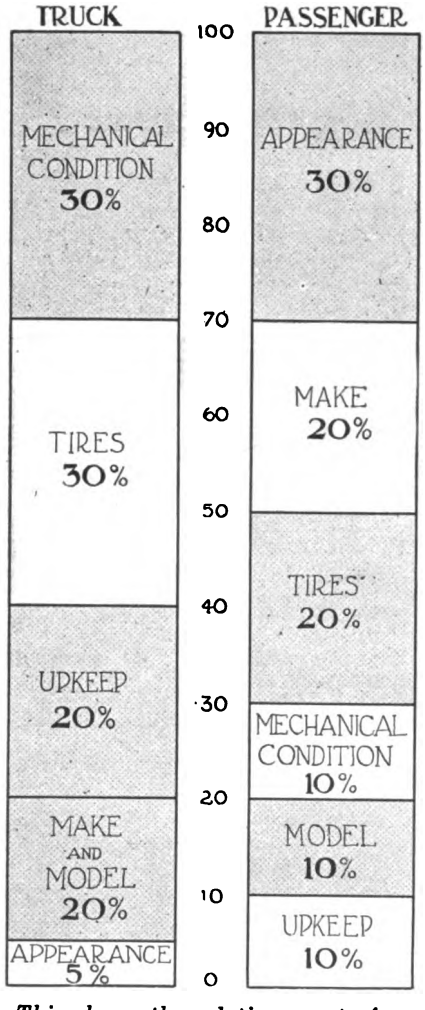
Have a Specialist

Dealers that have successfully entered the truck field have found that the best way to handle the used truck problem was to engage one man that cared for the used truck purchases and sales. And this man should be preferably a specially trained man. As selling used passenger cars differs from selling new passenger cars, so does selling used trucks differ from selling new trucks. One is selling a definite product to a definite class, the other is both buying and selling a questionable product to an ever changing group that usually buys only one truck.

This used truck man should, if possible, be a man that has worked up through the shops, for the prime requisite of his job is the ability to gage the mechanical condition of any truck. If he cannot do this, he cannot correctly determine the value—and, more important, he cannot intelligently tell the purchaser what he wants to know. The other attributes of salesmanship are not so essential in used truck sales. A good hard-headed mechanic, that knows truck values, and will stick to his price, makes an ideal used truck salesman.

Credit Business

The dealer should also prepare to do a large amount of credit business, in the used truck field. Several dealers have stated that practically 90 per cent of their used truck business is on a time payment basis. And the reason for this is obvious. Most of the prospects come from those just entering on, or conducting a small business. They do not feel that they can invest all of the money at once, and wish to pay as they earn—but they want, and need a truck.



This shows the relative counts for different factors in trucks and cars when viewed from a used car angle

Should Be a Credit Man

For this reason, the used truck manager must be sort of a credit man. He must be able to investigate the credit standing of his prospects, or otherwise he will run into a high percentage of returns. He must also be able to determine whether the prospect actually needs a truck, for if he does not, the payments will cease, and the truck will be taken back at a loss. These things are necessary because of the class that purchases used trucks—the small business man, with a small amount of working capital on hand.

In a Commercial Car the Big Thing Is "Works"

In the used truck field, as in the used car field, the lighter vehicles move best. The small business man again enters, as it is usually the smaller and lighter truck that he desires. The dealer, therefore, should not take in many of the heavier and larger types, unless experience has shown him that the demand permits it to be done.

Evaluating a Truck

It was stated that the points entering into the value of a used truck are nearly the reverse of those on a passenger car. An approximation of the reversal of this relation is shown in the chart. The first item to consider in evaluating a truck is the mechanical condition. A small amount of doctoring may cover up the troubles of a passenger car, and if the appearance is good, the rest goes for granted. But the truck must show its value in its mechanical condition.

The tires are an important point in passenger car sales, but they are a still more important point in truck sales, because the amount invested is porportionally more. A complete set of truck tires may run anywhere from $200 to $500, and patching up for vulcanizing is not possible with tires of the solid type. Hence the remaining mileage may be quite accurately estimated and the value determined. Poor truck tires are a liability, because they must be replaced at some definite time.

Small Ads Best

The majority of the prospects come from the small merchant class—the butcher, the baker, the plumber, the farmer, and so on. These may best be reached through small advertisements in the local papers, though a more intensive scheme is to study the field, see who might need a truck, and permit him to use the truck at his own cost for a short time. This is not generally considered good practice in selling new trucks, but with the smaller business man, who cannot figure his costs, an actual demonstration is advisable.

Even with careful allowances on used trucks, and good merchandising, it is not often that the used truck department shows a profit. But it is a necessary part of the business, and if intelligently handled will at least not show a loss.

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Workers Will Win the War

The Army Is as Helpless as a Baby in Its Cradle If There Is Not Organization of the Industries

By Sir Stephenson Kent, K. C. B.

Director General, Labor Supply Department, British Ministry of Munitions

At the request of Secretary of War Baker, a deputation from the British Ministry of Munitions has been relating to groups of American business men how Great Britain handled the enormous labor problem which arose with the realization in 1914 that England was hopelessly deficient in all munitions of war. Under the leadership of Sir Stephenson Kent, the deputation first consulted with the Government and was then asked to tour the country so as to circulate widely the valuable information they possessed. The mission was not advisory; it merely came to tell a story and to answer questions. Speaking to the Editorial Conference, a body consisting of the editors of all America's leading business papers, in New York, Nov. 13, Sir Stephenson Kent gave this complete and concise summary of the British situation.—EDITOR.

"WE recognized in England, after our first few months' very bitter experiences, that the organization of a nation's industries on a war basis is even more important than having an army. *The army is as helpless as a baby in its cradle if there is not organization of the industries and if the munitions that are absolutely vital to the success of that army are not forthcoming, and forthcoming without interruption.* Continuity of supply, and an ever-increasing supply, are vital to the success of the army at the front.

"Industrial peace at home is a necessary accessory to the success of your army; without it, it is never going to dare to move. My government called together, before the Ministry of Munitions existed, capital and labor; federations of employers and the heads, the executive chiefs, of our trade unions. We differ from you in that respect. The labor that is engaged principally in the engineering trade, in the manufacture of munitions, in its widest sense, is very highly organized. The percentage of *trade unionism there is very great* indeed. I think it is no exaggeration to say that in the engineering trade 80 per cent of the labor is trade union labor.

"My government had two ideal bodies to negotiate with: (1) The committees of these federations of employers, who were fully representative of capital's voice, (2) the trade unions' officials, who fully represented labor's voice.

"That conference ended in what is known as the Treasury Agreement. That Treasury Agreement was embodied in the Munitions of War Act. The principal features that I am to worry you with in regard to that act are as follows:

"In the first place, the Minister of Munitions definitely had power and definitely limited the profit made in any establishment that was engaged in the manufacture of munitions.

"In the second place, the wage of the labor in those controlled establishments was fixed; it was made quite clear to the trade union heads and to labor generally that there would be no fluctuation or variation in the wages of that labor, except by express consent of the Minister of Munitions, and that he would not give his consent to any such variation unless an overwhelming case was made to him.

"The state then having fixed the profit and fixed the wage, and capital and labor and the government having definitely agreed on the principle which, I think, is essential, that a nation's need is not the opportunity for capital or for labor to make money out of its country—having done that, the state realized its duty in regard to the labor, whose wage it had limited.

Offsetting Increasing Expenses

"The Committee on Production was set up, whose function it was to ascertain what, if any, the increased cost of living amounted to and to issue a national award in regard to that labor whose wage had been fixed, so as to meet the increase in the necessities of life that that labor might find. That committee meets three times in a year and has the necessary statistics laid before it, receives representations from trade unions and from any one else who has a voice or should have a voice in the matter, investigates the case very carefully, then gives instructions that this labor should receive so much extra per week to meet that increased cost. That is paid by the employer and is recoverable by the employer from the state. It is the state's charge.

"The third point was the illegality of strikes and lockouts and compulsory arbitration. The same principles underlay that. In peace time a lockout or a strike was a matter between the employer and his employees; in war time it is a matter of national concern. If, through obstinacy on the part of the employer or his employees, a factory which the army was very largely dependent upon for some very definite and urgent munitions remained out of work for some period, the state could not tolerate that; and so, in this Act, it was laid down that any lockout or strike is illegal, and if any one incited the men to go out on strike, or if the employer deliberately locked out his employees, the maximum penalty for any such offense is penal servitude for life.

"My government induced—it required very little inducement—the trade union leaders to agree to waive all the restrictive practices that had been common in the manufacture, on the civil side (what now is the munition side) from the point of view of output or from engagement of labor on war work, for the period of the war. On the government's side it pledged itself to restore the prewar conditions in any factory where by that agreement the normal conditions had been varied.

"Those, I think, are the principal features of that act. The act has, on the whole, worked well. We have had stoppages, we have had strikes, but they have not been of very great length or of very serious moment. And I think, if you take into consideration the very long period of strain that our workmen have suffered under, it is a very surprising thing.

"You must remember that in the early days of the Ministry of Munitions we worked these employees in these factories hours that are really disgraceful. I know no better word. One hundred and twenty hours in the week in some establishments. A hundred hours was quite common. That went on for a period of some months. All their holidays, their normal pleasures, the relaxations, horse racing, football, and so on, were all wiped away. These men were required to work and to forget that they were in the world

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to try and get any little pleasure out of life.

"That being the case, after all this long period, it will be, I think, easily appreciated that because of war-weariness, a state of mentality that is very apt to magnify grievances, any little, tiny, grievance becomes a matter of very great importance. It is a very fruitful soil for the pacifist, for the professional agitator, for the I. W. W. and so on to work on. And I think that it redounds enormously to the credit of our labor that we have managed to get through with this continued industrial peace.

"The Ministry of Munitions set up in the ministry a labor side, of which I have the honor to be the head; and to that labor side is given the solving of all the problems that deal with labor. They are dealt with on a policy that is laid down by the Minister of Munitions or the government, as the case may be, from time to time.

"These matters are not left to the individual employer to deal with as he thinks fit. We do not permit one employer to settle some little dispute in one way, another employer a similar dispute in another way. We try to get some definite, broad policy laid down, and then deal with these matters on that policy throughout the country.

We look upon it as our business, and we have a very considerable staff, whose duty it is to act as the eyes and ears of the Minister of Munitions. It is their function to know of any possible cause of dissension in any industrial center in the country, and to deal with that cause of dissension before it becomes a dispute.

We have the theory that in war time prevention is one million times better than cure, and we look upon it as our duty to prevent the possibilities of dispute even arising. We have, to a certain extent, been successful, but it is a very arduous business to-day, because of that state of mentality to which I referred.

It is so very easy for what appears to be a point of no importance whatsoever to suddenly become a sort of fiery cross to the whole of my country. And so these eyes and ears, these officers of the Ministry, are a very essential part of our administrative machine.

Economy Vitally Necessary

"We take the view that to-day, above all other times, it is absolutely vital to exercise economy from every point of view. Economy from the point of view of food—yes; and economy from the point of view of the materials that are essential to the winning of this war, economy from the point of view of the use of man-power.

"We look upon it to-day in England as a very serious crime if steel or copper or lead or iron or any of these raw materials which we never have a sufficiency of is used for any purpose other than to help to win the war. We look upon the employer or the army or a government department who misuses the skill of any mechanic or any citizen really, as a mistake and a crime, and something that it is our duty to put right.

"We have a great number of technical civil engineers of the highest qualifications, whose duty it is to investigate the use made of man-power in these establishments. They report to the Minister of Munitions, and if they find any employer having in his employ a skilled workman, and that that skilled workman is doing work that somebody who possesses less skill could do, we take very serious note of it, and move him on to some better work, work that he should more properly be performing.

"That, with us, is absolutely vital, and I think, if I may say so, that you, in no very long period of time, will also find it vital. *This war is primarily a war of mechanics.* There is no country that is to-day at war that has a sufficiency of skilled mechanics. We are all lamentably short of skilled mechanics.

Mechanics for War Work

"If you will remember that to-day every gun that we manufacture and send to our army, with that gun we have to send some small number of skilled mechanics; that with every airplane a very great number of mechanics, and so it goes with every conceivable article of munitions that we send to the army, we have to deplete the skilled man-power that remains to use in our country.

"The better we supply the army, the more difficult our problem at home becomes. And so with you exactly the same problem must arise; and I understand again that one of my colleagues is going to elaborate and give you details on that point.

"We had an experience that I gather you are having at the moment, and that is the migration of labor—the enticement of labor. In the early days our employers were loyally anxious to do everything they could to assist the government in getting the biggest output of munitions that was securable at the earliest possible moment. And I think they thought that it would be of assistance to the country if they accumulated as large a number of skilled mechanics as they could in their establishments, that they would then be ready to take on any order that the government might like to entrust to them.

"Of course, any such habit as that is a very dangerous one. It leads very rapidly to one of the most vicious circles that one can picture. The man whose labor is being taken from him has proceeded to rob somebody else; and so it goes, and there is no finality in it. You get unrest of the worst description among your labor. They are always looking round the country to see if they can't find some other employer who will offer them a still higher wage than they are at that moment receiving. It leads to chaos and mismanagement and general stupidities that are very difficult to overcome.

A Valuable Big Stick

"We dealt with that under a very convenient instrument that we have in England which is called the Defense of the Realm Act. Under that act the Minister of Munitions and a great number of our government officers can draft a regulation which he thinks necessary and publish it and for the time being it becomes the law of the land.

"We made it an offense for any employer in the engineering industry to offer inducement to labor engaged on a similar class of work. We also gave the Minister of Munitions power to restrict and regulate the employment of labor in any establishment. If the Minister were dissatisfied with the way any employer was either handling his labor, or was making use of his labor, or generally, he had the power to lay an embargo on the engagement of labor in that particular firm; a very valuable Big Stick. It brought things to some sort of state of order, and to-day we have no trouble from that point of view. In fact, one may say that wages are stabilized, occupation is stable; that we have more or less solved that particular problem. I say it with all reserve, because if there is one thing the war has taught me it is to give no pledge and to make no prophecy. Nobody knows what is going to happen to-morrow.

"I do think it is an old truism—and this does not apply to your country or to my own, but the people have the government they deserve, and I do think (I am a business man when we are at peace) that the business communities of the world have got to take a bigger interest in their government in peace time and not leave it till war time in future.

"It is absolutely impossible to exaggerate the importance, the overwhelming importance that labor plays in war. Without labor, without that industrial peace of which I spoke, this war cannot be won. It is the basis of the war. Your man-power at the front, your man-power at home, all turns on labor's activities and the solution of the problems that war brings in regard to labor.

Overcoming the Shortage

"Our two schemes for overcoming our shortage of labor have been the dilution of skilled labor and the substitution of women for men. Both of those schemes were contrary to the trade union customs and practices as they were before the war, and we have been able to put them in practice only on the basis of the agreement between capital and labor, to which Sir Stephenson Kent referred.

"One provision of that agreement was the abolition of all jurisdiction limits, and another provision had the effect of abolishing all trade union customs and practices during the period of the war. The whole agreement, however, referred to work on munitions only. Our employers made use of those agreements in various ways.

"First, an unskilled worker was brought into the plant to do an easy job. The man so displaced was put on the more skilled work, and the man displaced was again promoted, and so on until there had been an upgrading of skill throughout the whole shop.

"I might give you an instance of that process which occurred recently in a steel works in Wales. The works had put up some new furnaces but the ministry was unable to supply either skilled

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men or unskilled men for the extension. The firm solved its problem by taking on sixty-seven women. The women, though, did not work the furnace. The process was this:

"The women took the place of laborers in the plant; they did loading and unloading and wheeling and transporting of material of all kinds and breaking up limestone, and generally all the laboring work in the plant that they could tackle.

"The men so displaced were put onto the simplest jobs in the works. They were made fourth-hand melters and mixers and those men were promoted to be third-hand melters and mixers, and so the grading-up process was continued on the old furnaces until a sufficient skilled staff had been obtained to work and man the new furnace.

"Another method adopted was to draw unskilled men from the non-essential trades, unskilled men who were either over military age or of low medical category. Watchmakers were brought into the tool rooms to do gage making.

"Our building industry was largely closed down and we took sanitary plumbers from there and trained them up to do lathe turning for our explosive factories. We also drew from the building industry carpenters and joiners and sent them into the shipyards to act as shipwrights and shipjoiners. We took mechanics, textile mechanics, from the textile industries, accustomed only to rough work, and trained them up to the better work of munitions.

Right Men in Right Place

"A third way was by confining the fully qualified mechanic to the highest forms of skilled work. If the mechanic normally had been on a job that could be split up into two or more parts of varying degrees of skill, the mechanic was confined to the part requiring the most skill, and we trained up men and women to do the lesser skilled parts.

"As an example of that process, I might mention the making of snap gages in the tool room. We commonly employ women to make, harden and grind the gages to within nearly their final limits, perhaps half a thousandth of an inch, and we confine the skilled mechanic to putting on the finishing touch.

"Those schemes we called the dilution of skilled labor, because we made the very little skill we possess go a very long way by diluting it with as much unskilled labor as possible. That dilution helped us to a great measure in dealing with our shortage of skilled labor, but before long practically all the useful men in the non-essential trades had either been drafted into the army or had gone into the munition plants, and to meet our continually increasing demands for munitions, we had to rely upon the women, and we adopted the scheme of employing women for every job which a woman could do or could be trained to do.

"It was agreed that a woman undertaking work which previously had been done by a skilled mechanic should receive the same day rate as the skilled man; if she was on piece work, she was to receive the same piece rate. It was only when she was on unskilled or semi-skilled work that the woman's wage could differ from that of the man, and then her wage was regulated by an order which fixed a minimum wage—a wage, roughly speaking, two-thirds that of the unskilled man. Those wage conditions may not appear of great advantage to the employer, but indirectly they have proved extremely useful.

"As a result of the good wages that women have been able to earn on munitions work, we have never been short of applicants for any kind of work, and our employment of women at present is limited only by our facilities for training them.

"In another respect, too, those conditions have been useful. They have had the effect of attracting to munitions work a good class of woman who has had a fairly good education, and we have found that she is capable of far better work and can more easily acquire skill than the type of woman that previously had been common in our textile and other factories employing women.

1,000,000 Women Workers

"Our women have done very much more than anybody believed would have been possible. We have now on munitions work only over a million women. Every one realized that we should have no difficulty in introducing women on the simple repetition jobs of a light character, but since the Minister of Munitions began to urge the employment of women—and that was about two years ago—the development of their employment on munitions has been most striking, both in the extent to which machine shops are staffed by women and in the difficulty of the work on which they are engaged.

"Operating work on shell and fuses and grenades is obviously women's work, although two years ago 12 and 15-in. shells would have been regarded as on the heavy side for women, but now women are doing very much more than merely operating the machines. We have a shop on 5-in. shells in which only 6 per cent of the hands are men; and in the machine shop all the tool setters and all the charge hands are women. And we have another shop on 6-in. shells in which the proportion of skilled mechanics is one to every fifty women. I mention that shop because for output it is one of the best shops in the country.

80 Per Cent of Workers Are Women

"Taking shell and fuse and that class of munition work as a whole, on the average, about 80 per cent of the hands in the plants are women. And that is a very important result from the point of view of man-power.

"And there is another class of munition work in which the same obtains. That is in the explosive manufacture and filling. In our largest explosive factory, making cordite, gun-cotton and certain other explosives, we have 15,000 hands, and of those 11,000 are women. On filling work, on the small shell, and on fuses and similar articles, we reach percentages well over 90 per cent, and on the larger shells the percentages are, of course, lower.

"Coming to more highly skilled work, the percentage of women employed is, on the average, a good deal lower. But there are individual cases in which our percentages reach very high figures. We have a shop engaged on breach mechanism for howitzer guns in which every machine tool is operated by women who sit and grind their own tools.

"And, to take another example from tool-room work, we have women making screw gages, and the only skilled assistance they receive is that a toolmaker checks the setting of their chasing tools. For that class of work training is required.

"On the work I previously mentioned, the simple repetition work, we have found that no training, no special training, at least, is necessary. But the plants engaged on skilled work have found considerable difficulty in the earlier stages of the training of women.

"Frequently they have but little work of a simple character on which the women can gradually acquire skill. And to meet that difficulty, the Minister of Munitions has equipped a number of training schools and constructional factories, who train the women and then supply them to the plants.

Training the Women

"In those training establishments we do not attempt to give any general instruction. The women do have a two weeks' course of general work, in which they are taught to use the foot rule and the micrometer, but then their training is specialized and they are taught to do a specific job on a specific type of machine. And in that way, by confining their work to quite narrow limits, we find that they can acquire considerable skill in from six to eight weeks' training.

"But the larger proportion of the training has been done in the plants themselves.

"In 1915 all our employers regarded the introduction of a woman into a machine shop as one of the horrors of war—about on a par with Zeppelin bombing and the shortage of sugar. Nothing has been more striking than the change of our employers' attitude toward women in the past two years.

"If there is now a question between taking on a woman or an unskilled man, the employer has no hesitation at all.

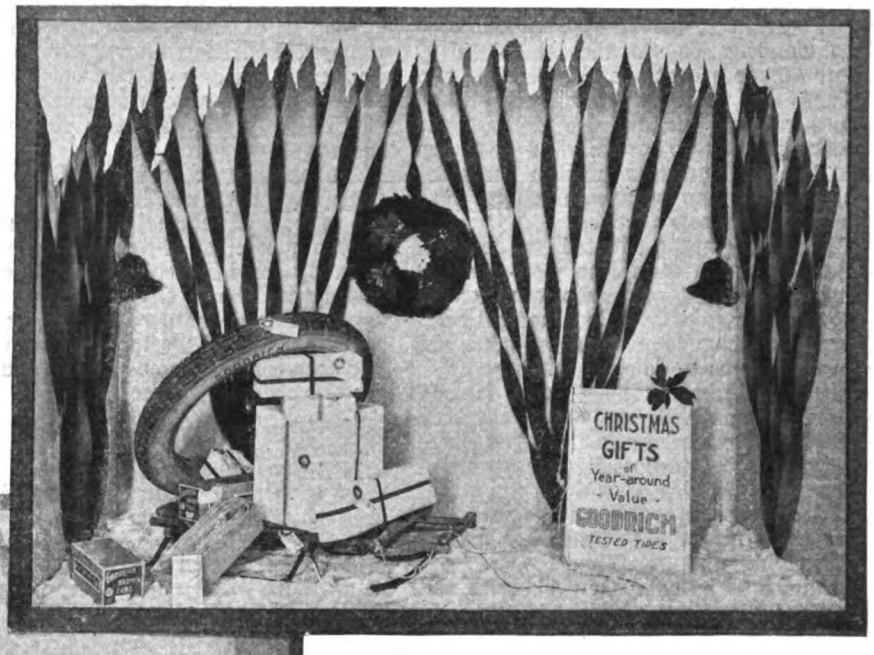
"I am afraid that these results of our experience may seem rather far off for conditions now obtaining in your country. But in England the difficulties of the shortage of labor came upon us very suddenly and unexpectedly; and I believe that you are no better off for skilled men than we were at the outbreak of war, because you have adopted the policy of the unskilled operative to a far greater extent than we did in England. And I believe that you will in a question of a few months find yourselves following our experience and faced with a serious labor shortage; and then I hope that the results of our experience may prove of some service to you.

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4 Ways to Make Christmas Tire Windows

Try These

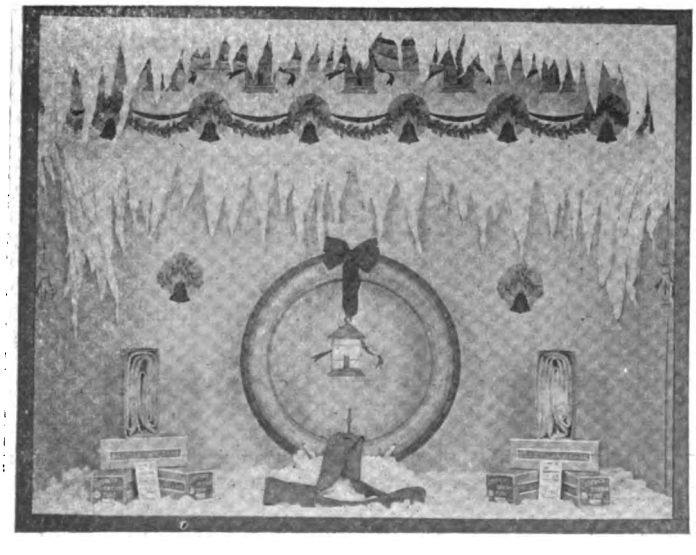
Try these windows Christmas week and the week before. Add New Year's cards and use them during New Year's week. They will draw attention to your store. They will stimulate buying. They will direct money that might otherwise be spent for useless gifts into your store, where USEFUL gifts may be bought.

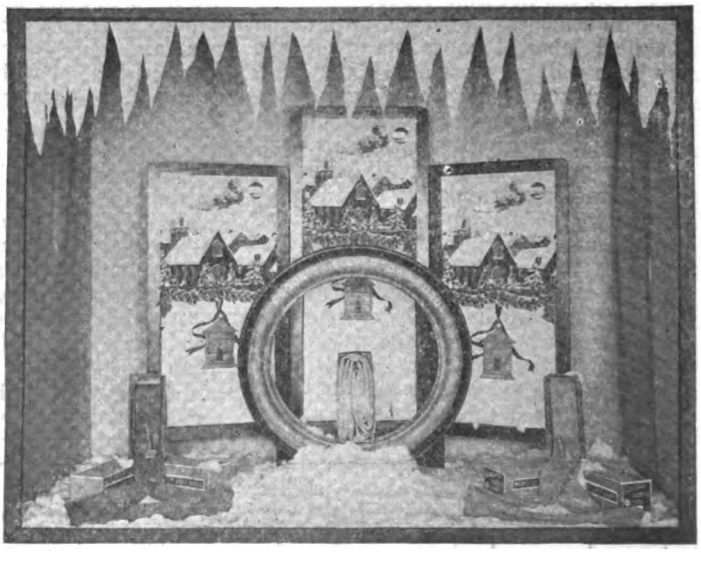




Easy to Make

These windows are simple to make. A look at them tells how they are put together. Use cotton where there is snow. Cut white flannel where there are icicles. Get the pictures from a Goodrich branch, or make some sketches yourself. The beauty of these windows is that they are easy to make and are highly attractive.





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The Suit That Changes Color

By Ray W. Sherman

WHENEVER one of the salesmen wanted to pour out his soul he went to Reilly. The Sennett dealer had listed Tommy Trumbull as sales manager—and so he was. Tommy had full authority in his department. He managed sales and the salesmen, but once in a while, when a salesman seemed in need of contact with some one else, Tommy sort of suggested that maybe Mr. Reilly could hand out a bit of good advice.

The salesman generally accepted this offer as a fine time to pour his story into the ear of the "big boss," and always fell into the trap. He poured out his soul only to discover in the end that the big boss was thoroughly in accord with what the sales manager did.

Whereupon the salesman went back to his salesmaning—and did it better than ever.

To-day little Roberts had fallen for the "big boss" trap. He never had been able to fit in. He had too many ideas of his own—or thought he had. He never wanted to do things Tommy's way. He always had an idea as to how things should be done and didn't like the idea of being told how he should operate.

"I'll tell you," he poured out to Reilly, "I've got a lot of good ideas—at least I think they're good—but I don't seem to be able to get any of them accepted. I don't seem to be able to get along with Tommy. Sometimes I think he doesn't like me."

"Oh, he isn't a bad fellow," laughed Reilly. "What's the particular issue now?"

"Well——" Roberts hitched over to the edge of his chair, "it's this matter of reporting sales."

"Yes."

It's Hard to Explain

"The order we got a long time ago was that each man was to make his reports in a morning sales meeting to the stenographer and then hand in his cards and get new cards for the day's work. I don't think that's a good plan. I think it's much better for each man to make out his own reports in his own writing. It seems to me that the reports will be better. I——"

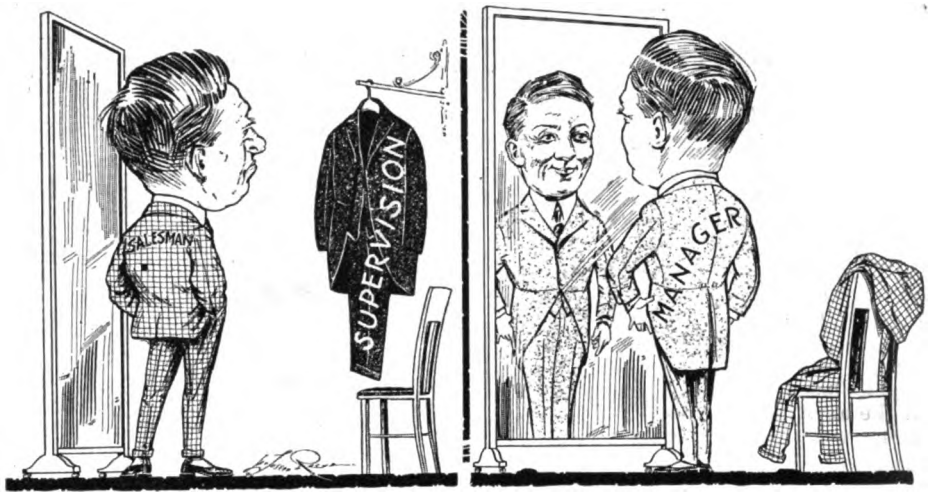
"How would they be any better?"

"Why—well—it's hard to explain—but it seems to me there would be more—more human interest in them."

"Would it help make more sales—and just how?" asked Reilly.

"Well—of course—you see—I can't prove that it would, but I would like it better, and I'm the man who makes sales, am I not? And if I liked the work better wouldn't that make more sales?"

"Maybe it would," admitted Reilly. "I'm sorry you don't like the job."



"Oh—ah—I didn't mean that!" hastily expostulated Roberts.

Reilly smiled. "You don't dislike that job half as much as you think you do. Your imagination is just a little out of order, that's all. You are merely troubled right now with what many of us get at times, and that is a disposition not to fit in, not to accept supervision from those who are our superiors in the organization—although perhaps our inferiors in many other things.

"We all must be supervised," Reilly continued, "or progress can't be made. Every man in our organization must be supervised, some more than others, but all some. If that were not the case there would be no need for managers, for departments and for office system.

Lack of Supervision

"What happens when there is too great a lack of supervision is apparent in Russia, where everybody wants to be the boss and nobody is willing to play his part in organized endeavor.

"Tommy is sales manager. His work is supervising the sales department. Everything there is up to him. Of course, I like to know what's going on, but as long as things run all right I don't interfere. Tommy has to make good on his own ideas and ability, and if he can't do that then there has to be a new sales manager. So far he's doing VERY well.

"He conceived this verbal report plan—and it has worked well. Some of the boys weren't enthusiastic over the idea at first, but they have all fallen in with it and it saves a lot of time for each salesman. Most of the boys are making more money—and so is the house.

"Of course, it means that every man has to be on hand promptly in the morning, but that really is a benefit to the men as well as to the house, for it gives them more real working time. All a salesman has as an asset is brains and TIME. Being on time in the morning is sometimes a hardship, I will agree, but we haven't been unreasonable on that score."

"Tommy called me several times for being late," said Roberts with a wince, but his remark seemed to go unnoticed.

"But we must have supervision. Some one must do it," Reilly added. "And the good men in an organization are the men who can and will accept supervision. The man who accepts it makes himself a more valuable man to the house. And he becomes a more valuable man to himself. He gets instilled into himself some sound principles and good habits. He learns to submerge his personality and eccentricities to a certain extent and co-operate. He allows the ideas of men who, generally, know more than he does to be made a part of himself.

"By accepting supervision when he is in the supervised class the man becomes eligible for a supervising position—and in no other way. Sometimes the supervision may seem faulty, but no man should disrupt an entire organization just because he doesn't like the manager's ideas.

Volunteer Your Ideas

"If I were a salesman I believe I would volunteer my ideas to my manager and talk over with him the things I didn't like. If he were a good manager he would be fair with me and tell me, so far as he could, why I was wrong. And when he had done that I believe I would accept supervision—and co-operate.

"Supervision is simply give-and-take Both supervisor and supervised have to give and take. And the men who put on the suit of clothes called SUPERVISION may some day find that they have changed to SUPERVISING."

As Roberts walked out of the office, he said to himself: "I wonder if Tommy and the boss have ever talked me over."

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Repairshop Shortcuts

From The Motor World Roadman

No. 1475—WASH RACK LAMP

A good method of supporting lights is to use a rectangular wooden frame about 15 ft. long and 7 ft. wide carrying the lights on the inside face and suspended from the ceiling by ropes. Tungsten lamps should be used, each provided with a metal reflector, and the entire framework may be raised or lowered through the rope. The hose also may be swung from the wooden frame, one extension dropping down each side of the car so that the apparatus is really a wash rack and lamp combined.—Flynn's Garage, Pittsburgh.

No. 1476—REAR AXLE SPEED WRENCH

The time required in removal of the gear pinion and the large locknut on the Studebaker transmission housing has been decreased from 2 hr. to 20 min. by the use of special speed wrenches. Each of the wrenches is used in a bit brace and comprises a ring to which is fastened eight teeth fitting into castellations on the locknut. The larger wrench has a ring 4⅛ in. in diameter with teeth ⅜ in. long and ¼ in. wide. The smaller wrench has a ring 3 in. in diameter with teeth ¼ in. long and 3/16 in. wide.—A. F. Bliss, Park Motor Co., Livingston, Mont.

No. 1477—TESTING DEMOUNTABLE WHEELS

It is essential that demountable wheels be true. Often it cannot be determined whether the wheel itself is at fault or whether the axle is sprung. The wheel itself may be tested by removing it from the car and placing it upon a front wheel hub that is attached to the conventional axle. The axle in turn is bolted to a wooden horse and the wheel is rotated past a test gage at the side of the stand. If the wheel is out of true one remedy is to shift its method of attachment to see if that does not correct the error. If not, it may be possible to shim the wheel slightly, but in cases of much destruction the wheel should be rejected.—Maxwell Motor Co., Detroit.

No. 1478—PORTABLE SHOP LAMP

A flood of light may be directed on the point of work by means of a portable lamp readily constructed from materials available from any electrician. In form the lamp comprises an X-shaped base to which is secured an arched upright carrying the lamp. Both the base and upright are conduit and are fastened together by the usual conduit elbows. The lamp is secured through the usual porcelain outlet at the end of the overhanging arm and is provided with a metal reflector. This lamp may be carried to any part of the shop and permits the workman to operate without the usual reflection common to the inspection lamp.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1479—STORAGE BATTERY REPAIR

An ordinary tea-kettle and gas burner may be quickly modified for tearing down batteries. First the lid is soldered in place and three outlets are soldered to the spout. The kettle is filled wih water and placed on the gas burner. A hose is attached to each outlet on the spout and carried to the cells of the battery. By these the steam generated is passed into the cells, quickly softening the composition so that the tops may be readily removed. Of course it is understood that the acid should be first poured from the cells. An additional kink on this equipment is an electric lighter on the gas burner. This is simply a Ford vibrator operated by three dry batteries through a push button and so connected that the spark is passed over the burner lighting the gas.—Jones & Loomis, Basin, Wyoming.

No. 1480—MAXWELL ENGINE STAND

An engine stand may be used for a running-in stand and to test the engine before it is replaced in the frame. The standard Maxwell engine stand may be adapted to this purpose by providing supports for a radiator at the front and together with a bracket for attachment of the gasoline tank, and an individual ignition system should also be incorporated as part of the stand.—Maxwell Motor Co., Detroit.

No. 1481—AUXILIARY JACK

Ordinarily repairshop jacks are cast iron, but all places are not close to a foundry and hence this method of construction is difficult. An exceedingly good set of auxiliary jacks, however, may be built up from 1¼-in. pipe fittings in the manner illustrated. A feature of this jack is that it is exceptionally stable on account of the large base.—Maxwell Motor Co., Detroit.

No. 1482—BATTERY LIFTING TONGS

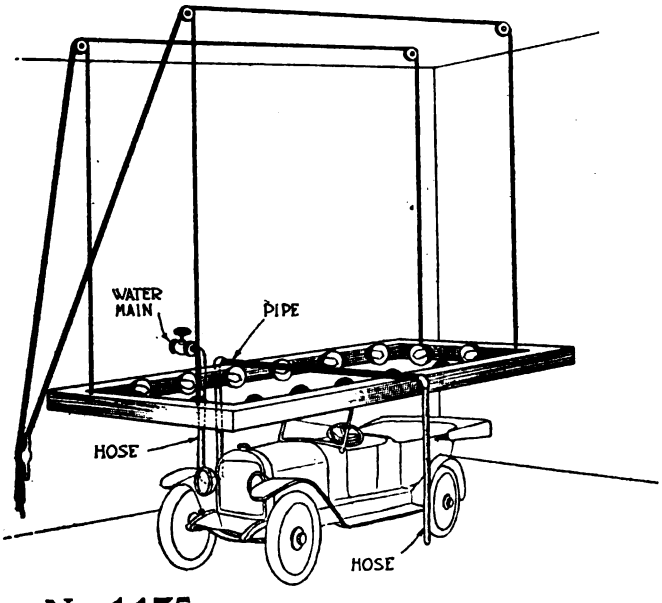
Storage batteries are heavy and the handles provided are usually so small that difficulty is experienced in placing them in the battery box. Here is a pair of tongs resembling those used by an iceman, only being somewhat more shallow and provided with a ring so that a chain block may be used if desired. By these tongs the battery may be quickly and easily carried from one part of the shop to the other and removed and replaced in the battery box with a minimum of difficulty —Maxwell Motor Co., Detroit.

No. 1483—FIRE EXTINGUISHER PROTECTION

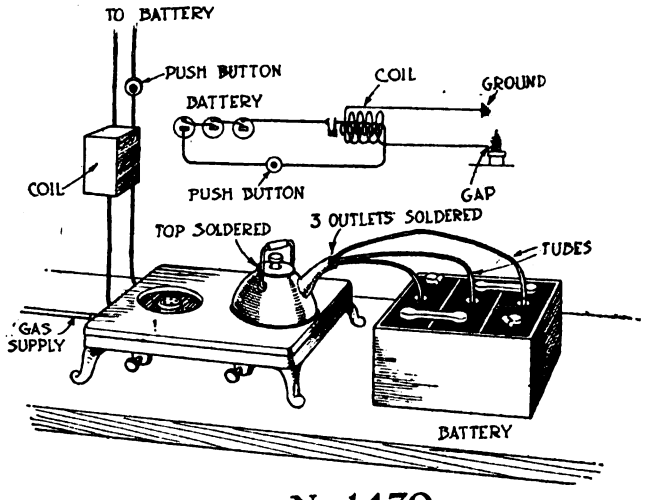
The very fact that fire extinguishers must be in an accessible position renders them usually open to theft. If the fire extinguisher is attached to a test bracket inside a wooden box that is provided with a glass front, it is protected at all times and accessible when necessary. A wooden mallet should be hung at the side of the box so that the glass may be broken without injury to the person requiring the extinguisher, and both box and mallet should be painted red so that they may be quickly seen.—Maxwell Motor Co., Detroit.

NAMES of prospects are worthless unless you have them listed somewhere so you can WORK THE LIST. If there were a million prospects with money in their hands going down the next street looking for cars it wouldn't do YOU any good unless you KNEW it. And it would not do you any good to KNOW it unless you WENT AFTER them. The prospect list helps you KNOW and GO AFTER.

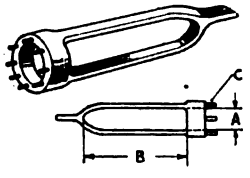
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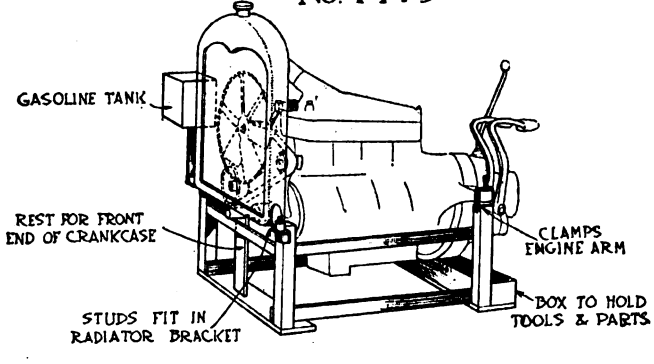


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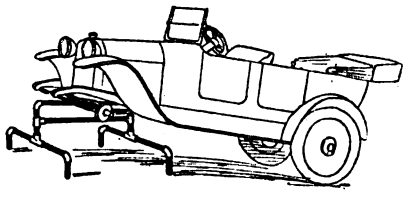


LARGE WRENCH A = $4\frac{1}{8}$" B = $8\frac{3}{4}$" C = $\frac{3}{8}$" x $\frac{1}{4}$" DIA.
SMALL WRENCH A = 3" B = $9\frac{1}{4}$" C = $\frac{1}{4}$" x $\frac{3}{4}$" DIA.

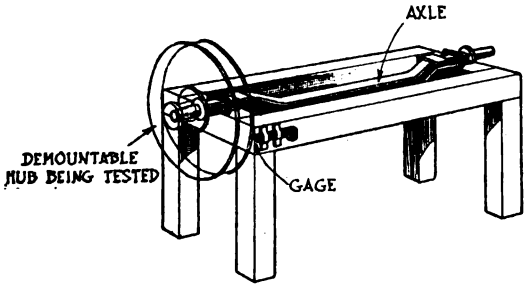
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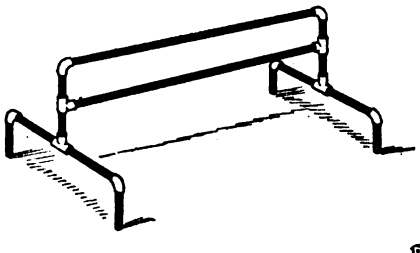
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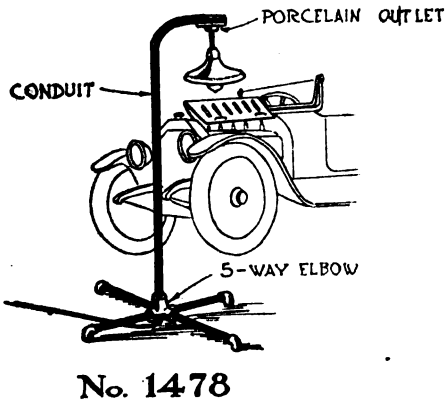


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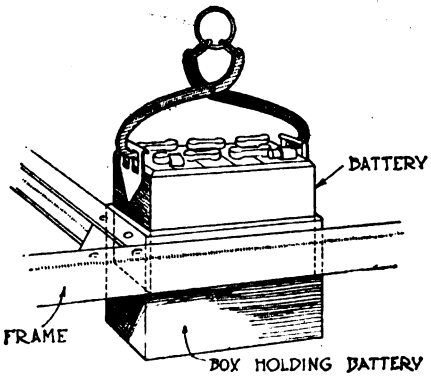


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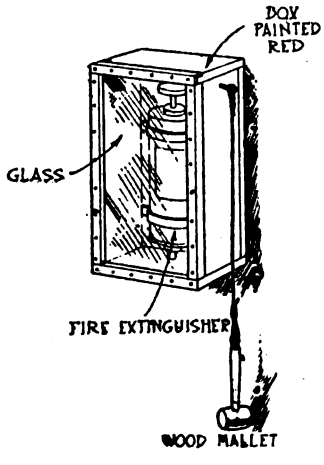




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A Department of

BETTER MECHANICS

No. 47

How to Make a Fan Dynamometer

By S. T. Williams

IT is now becoming the practice in better service stations to test each unit after it has been repaired, and before it has been placed in the car. For by this all parts can be placed in perfect adjustment most readily, and when the unit is replaced in the car it is with the assurance that everything is in good condition.

The Reo service station, Lansing, tests, adjusts and runs in all overhauled engines under a load applied by a fan dynamometer. In brief, this dynamometer is simply a large fan, driven by the engine, and as the power required to turn the fan bears a definite relation to the engine speed, it is possible to estimate the horse power being developed at any time.

The engine being tested is bolted to a heavy wooden universal engine stand, that in turn is mounted on the same base that carries the fan shaft bearings. This stand is wide enough to accommodate any engine, the engine being fastened to it through adjustable angle iron supports that can be set to duplicate the engine setting in the car frame.

A drive shaft similar to the drive shaft used on the engine is connected to the engine, and transmits the drive to a universal joint at the end of the fan shaft. Where several types of engines are being tested it will be necessary to have a special drive shaft for each type of engine.

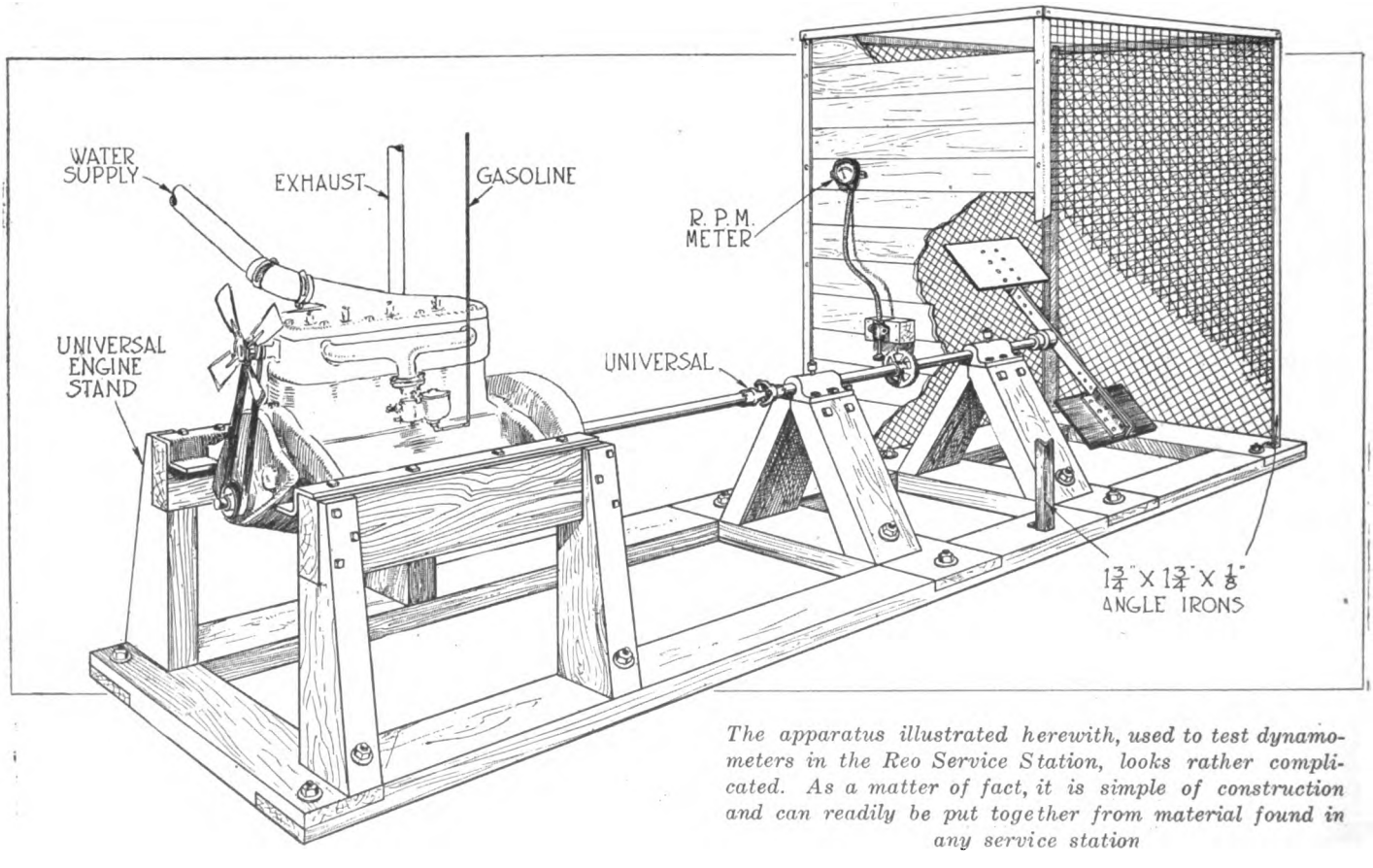
The fan shaft is carried on two heavy pillow blocks bolted to wooden supports. If possible, these bearings should be of the ball, or roller type, though plain bearings will give satisfactory service.

The steel hub carrying the fan arm is securely bolted to the fan shaft, and is slotted to carry the fan arm. The fan arm itself should be a solid bar of nickel steel, 3 x ⅜ in., 56 in. long.

The fan blades are heavy sheet aluminum, placed 40 in. apart on centers, and bolted to the fan arm by means of angle iron strips that are riveted back to back on the aluminum blades.

Inasmuch as high stresses are set up in the parts at high speeds, it is advisable to use nickel steel in the construction of the hubs, fan arms and bolts. To further remove the possibility of accident, the fan is enclosed in a cage of mesh wire netting.

As considerable air space is necessary all around the fan, the dynamometer



The apparatus illustrated herewith, used to test dynamometers in the Reo Service Station, looks rather complicated. As a matter of fact, it is simple of construction and can readily be put together from material found in any service station

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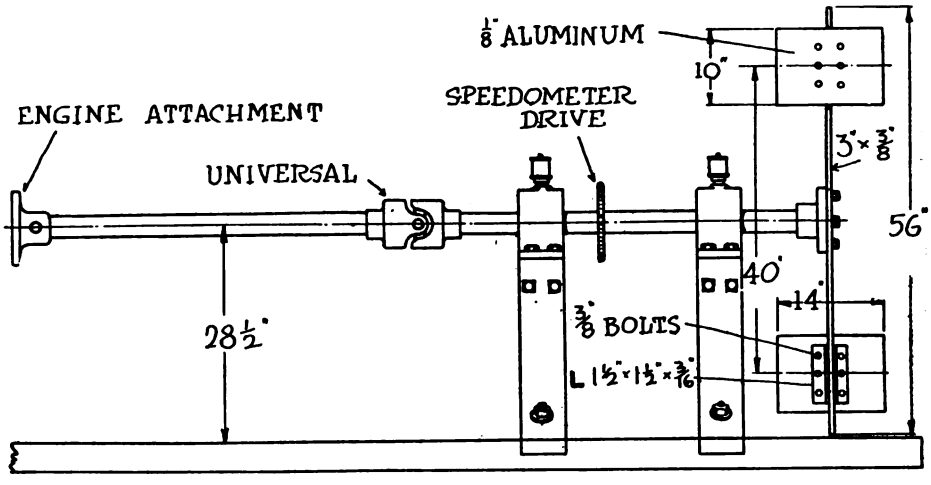
should be placed at least 6 ft. from any side wall or ceiling. This will permit air to reach the fan in sufficient quantities to maintain the resistance.

The following table shows the power at various speeds for dynamometers constructed as described:

Revolutions Per Minute	Horse Power
400	1
600	2½
800	6
1000	12
1200	20
1300	25
1400	37
1500	40
1600	48
1700	60
1800	70

As stated, the power required to drive the fan increases with the speed, and at all times bears a definite relation to the speed. Hence, knowing the speed, it is possible to determine the power being developed. The speed is shown always by means of a speedometer, driven from the fan shaft, but registering revolutions per minute instead of miles per hour.

The advantage of this type of dynamometer is its simple construction, and the fact that the power is absorbed without creating any dangerous amount of heat or causing wear on any part.



The engine being tested or run in can be set at a definite speed and allowed to run for an unlimited period without much attention.

Know Where You Are Going

Systematize Your Business

DO you know what chance you have of pulling through 1918 all right?

Do you know how new conditions have affected the profits and losses in the different departments of your business?

Do you know which department has started down hill and requires IMMEDIATE attention?

Do you know which one has picked up since conditions began to change?

Do you know how much more it cost to do business since July 1 than it did before July 1?

If you don't know these things what chance have you to weather the storm? Are you guessing or do you KNOW?

You must KNOW costs, KNOW profits, KNOW where leaks are, KNOW what departments gain and lose—you must KNOW everything about your business or you're skating on pretty thin ice.

There is one way to KNOW, and that is to use a Motor World Simplified System of Accounting. If you have no system that tells you what you MUST KNOW, get one somewhere. Get in touch with a banker or an accountant! Do something! And if you haven't or can't get something that suits you better write to Motor World and ask about the Motor World system. It has made money for nearly 2000 dealers and garagemen. It will do it for YOU.

E. L. Gonyer, who runs a garage in Middleville, Mich., says: "We have used the Motor World system for two years and are very much pleased with it."

H. A. Bowler, who runs the City Tire Shop in Spokane, Wash., says: "We find the Motor World Simplified System of Accounting to be everything that is claimed for it and feel that we can recommend it very highly to anyone connected with the automobile industry."

Remember this: The end of the year is at hand. Get your business on the right track now, so you can move into 1918 with confidence, knowing where you are going.

Get Ready Now for 1918

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

May Garageman Seize Released Car for Non-Payment?

Editor Motor World: After having accepted a note from one of our customers to cover charges against him for repairs and accessories, and at the date of maturity of note the same goes to protest and still remains unpaid, have we, under the Garage Lien Law of New Jersey, the right to seize the car upon which the repairs were made and the accessories supplied? Or, due to the fact that the note was accepted by us to cover our claim, will it be necessary for us to sue on the note?—Central Motor Car Co., Bloomfield, N. J.

Answer—The New Jersey lien law provides briefly:

"Garagemen, repairmen, etc., may detain vehicles in their possession against which they have charges for storage, repairs, gasoline, accessories, etc., until they are paid. The lien is not lost if motor cars are removed from their possession, and they may be seized wherever they may be found in any part of New Jersey.

"Detained cars may be sold at public auction after 30 days if the sale is first advertised in a paper in the city or town where the garage or repairshop is located, and 5 days' notice is set up in five of the most public places." Chapter 312 Laws of 1915, New Jersey, entitled "An Act for the Better Protection of Garage Keepers and Automobile Repairmen."

It is doubtful if the legislature intended to give garagemen the right to retake a car after giving it up voluntarily when the customer gives his check or note, and the check or note comes back.

There have been no decisions on this point by the courts so far as I know. In a case of this kind the dealer had better do what his local attorney advises.

If the customer is at all good financially, suit on the note is to be preferred because of its simplicity.

Lease of Garage Did Not Include Rooms Above

Whether the lease of a garage was meant to include rooms on an upper floor over the garage was the point at issue in a recent case.

The dealer alleged that he had rented a garage, showroom and appurtenances for a term of 12 months, beginning October, 1915; that this garage consisted of a ground floor and two rooms in an upper floor accessible by steps leading up from the washroom of the garage; that on Nov. 20, the landlord illegally and wantonly took possession of the two rooms and removed the steps leading to them; that he had intended to use the rooms as a clubroom for chauffeurs; that by being thus deprived of the use of the rooms he had been injured in his business to the amount of $5,000, which the landlord should pay him as well as $5,000 additional for the illegality and wantoness of his act.

The landlord denied that the two rooms were included in the lease, and the lease itself was silent as to the rooms, and only mentioned the garage.

The Court in deciding in favor of the landlord and holding that the two rooms were not included in the lease, took into consideration the fact that several people who had leased the premises before the garageman had not considered these rooms as included in their lease and had not used them as part of the garage. In view of the fact that the garageman had originally taken over the lease of the landlord's previous tenant, the court decided that he intended to rent the same premises that that tenant had rented and that therefore the lease did not include the two rooms on the upper floor.

The evidence showed that when the landlord wished to have the rooms repainted so that he could rent them, he requested the garageman to remove a few accessories which he had in one of the rooms, and that he removed them without any objection. It appeared that the rooms were formerly servants' rooms over the stable in the rear part of the back yard. A roof was built over the yard for converting it into a garage, and the rooms were accessible over the roof as well as by the steps in question.

The landlord lived in the adjoining house and could reach them by this over the roof route. The tenant who occupied them up to the middle of the summer of 1915 could reach them by both routes, over the roof and by the stairway in question. The key of the door accessible by the stairway was kept in the garage office. The garage was open night and day, accessible at all times to the landlord.

Garageman's Liability for Injury Sustained by Non-Customer

When a garageman is liable for injuries to persons other than customers who come into his garage is a question which comes up time and again.

In one case a man went into a garage to sell oil to the proprietor. Not finding him in the office, instead of sitting down and waiting for him to come, he started walking around the garage to look for him. He finally passed from the garage proper to the repairshop and while passing behind a car tripped into a pit and broke his leg.

He immediately brought suit against the garageman for negligence, but the court decided that the garageman had not given him any express or implied invitation to enter the repairshop and was therefore not responsible for the injuries.

In a case of this kind, it is well to remember that the negligence on the part of a dealer for which other persons can recover damages amounts to a breach of duty to the injured party. In order to sue a dealer and recover a judgment the party who is injured must state and prove sufficient facts to show what the duty is, and that the dealer owes it to him, as it has often been pointed out, that a person is not liable for negligence unless he owes some duty to the injured person and neglects it.

The fact that the pit is not covered or guarded in any way is not sufficient negligence in a case of this kind to make a dealer liable for damages to a person who has no real right to be on the premises. If this had happened to a customer the dealer might have been held responsible, but as a person who comes to sell things to a dealer is merely there on suffrance, the dealer is not responsible if he explores remote parts of the garage.

Of course, no one has a right to provide a dangerous path for access to his house, shop or store and invite guests and patrons thereto and provide or permit pitfalls in any way to their injury; for in all such cases there is an implied guaranty that they may comply with such invitations with safety. But if one departs substantially from the provided way of access, or, becomes the guest or patron in a place of business, and of his own notion goes in the dark into places of danger, and is injured, he voluntarily takes the peril and risk upon himself.

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Slump in Car Sales Passing in the East

"HOW are car sales in your territory?" Motor World asked a number of representative dealers in Eastern territory. "How have the last couple of months compared with the same months last year?" And here are their answers. The slump which became apparent in October appears to be passing, and, all in all, the prospects for the future are distinctly brighter.—EDITOR.

Easier to Sell Cars—
Trades Dropping Off

THE month of September was very fair after several very bad months. The month of October was way off—November looks some better. The general situation, Liberty loans, Y. M. C. A. campaigns, etc., have used up ready cash in the hands of the public, apparently, to a large extent, and I think that many prospective buyers have the opinion that public sentiment is rather against those who show evidence of any success to the extent of purchasing new cars.

The proposed curtailment of passenger car production will, I think, if anything, have a beneficial effect upon business in general. Prospective purchasers, with whom I have talked personally in the last week or so, have frankly expressed the opinion that they believe all dealers will be able to sell all the cars they will be able to get, probably without making trades at all, and the public, apparently, is commencing to share the opinion that even used cars, during the next year, will be higher in value and possibly before the year is over, at a premium, but I regret to say that there is no tangible evidence of this materially improving sales up to date.

Our dealers in smaller towns such as Malone, Plattsburgh, Glens Falls, St. Johnsville, Hudson, etc., have done little or nothing all year with one or two exceptions, and I should say that the percentage of business which they have done on the average is not over 50 per cent of what we anticipated they would do this year. I believe that this is due partly to general conditions and to some extent to the fact that dealers permitted themselves to get much in the same mental attitude as the purchasers. Our dealers have a reasonable number of used cars, but I would not say an unusual number with but one or two exceptions.

As far as I know, our dealers have not so far made any particular preparation to offset possible curtailment in production, though we, ourselves, are trying to do so just at this time, but have not as yet definitely decided just how we are to do it.

It would seem that automobile dealers as a class would hardly have the right to expect in the coming year to make much money, because there is a limit to how much overhead, organization and running expenses can be curtailed and still handle the business. We, ourselves, are anticipating that we have all got to exert every possible effort to cover expenses, and that by extraordinary effort we may make a little money. Personally I am considering every possible angle of our own business that we can in any way correct, eliminate lost motion or get a little better results.—E. V. Stratton Motors Co., Inc., E. V. Stratton, President, Albany, N. Y.

Stock of Used Cars
Steadily Melting Away

BUSINESS is normal and in some cases exceeding the volume sold during the same month of 1916.

An unusual sale has been made of closed cars of all makes, owing to:

1. Stimulating after-effect of the closed car show.
2. Few people are planning Southern trips this winter, and they are far-sighted enough to buy closed cars they never needed in winter before.
3. Extra aggressive sales push by energetic salesmen spurred on by active sales management.

Of course there are some dealers suffering from pessimistic articles, and naturally their efforts rise or drop according to the influence obtained from reading them, but this class of dealers is in the minority.

Great food for a special story to salesmen is that "no Southern trip," for the reason that *adverse criticism is sure to follow needless expenditures of the well-to-do, particularly at this time*, when our country is at war. And, of course, instead of bathing at Palm Beach, they are preparing to stay out of the cold by wrapping limousines around themselves.

More cars could be sold by some dealers if obtainable. No effort has been made by local dealers to enter other lines, as, in their opinion, the following serious curtailment of production would work a greater hardship to the country than would be necessary.

The stock of used cars, never great here, has been melting away, as the dealers are going to start with as clean a slate as possible in the spring, and will also have available real money instead of uncertain value in used cars.

In other words, all dealers here are putting their houses in order, a lesson some of them sadly needed, and this is bound to be beneficial to the entire industry.—Syracuse Automobile Dealers' Assn., H. T. Gardner, Secretary, Syracuse, N. Y.

Well-known Cars Sell
Well Despite Conditions

SO far as we are concerned, business conditions in this territory seem to be very good. However, we have noticed that as far as some of the other dealers are concerned, they are not so good.

It strikes me that the dealers who are handling old line cars, that is, well-known makes like the White, Buick, Peerless, Cadillac, Overland, etc., and who are aggressively getting after business, are doing very well, but the dealers who are handling newer stuff with lower standing than the old-timers are the ones who are suffering now and who are going to suffer more.

We have on hand a fairly good stock of used cars, but they are all pretty good stuff, and we are not at all worried about them. Most of the dealers who are doing business with us have small stocks of used cars, but nothing to be alarmed about.

We know of one or two local concerns who have been pretty good traders and who have in the neighborhood of fifty used cars on hand, some of them pretty tough propositions, and it seems to us that anybody in that situation has some cause for worry.

To date we have made no plans for possible curtailment. We feel that it is a little better to let the situation develop a little further and then we can make more intelligent plans or changes.

As far as I can find out, none of our dealers have made any special plans, and I don't know of any of the New Haven dealers who have done any planning

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looking ahead toward possible curtailment.

From what we can gather from a careful study of the situation, it looks to us as though there will be some curtailment in buying, which will automatically force a curtailment of manufacturing whether the Government steps in on it or not.

It further seems as though there will be a general raise in prices during winter, and while we may not have so many cars to sell next spring, we will be selling those we can get for more money, and consequently it seems to us we are going to be about as well off as we have been in the past.

Automobiles to-day are so absolutely necessary to double and triple business men's time as well as to take them out in the open and fill them up with fresh air and "pep" so they can tear off another good week's work after Sunday is over that it seems to me those in the Government who have this situation under their control will see to it that sufficient number of automobiles are built to take care of the demands.

We have customers who because they use automobiles are making two and three times as much money as they could without automobiles. They are salesmen of different kinds, life insurance, other kinds of insurance, etc., and they can see so many more people in a day that naturally they are doubling and tripling their incomes.

We can't help but firmly believe that when those in the Government awaken to the true situation governing the use of automobiles they will be talking about how to build a few more instead of cutting down.—W. A. Rutz, White Motors Co., New Haven, Conn.

Slump in Car Sales Made Up by Trucks

BUSINESS conditions are a good deal different than they were a few months ago. I presume every business man has his theory as to just the cause and there perhaps would be a great many different opinions.

With us it would seem as though the passenger car business had dropped off more than usual at this time of the year. However, there is still good business along these lines to be secured. It is a little harder to get and not as clean a business as we have been getting during the past season. This probably is caused by the fact that some of the weaker dealers are feeling the slow-up and are doing their utmost to unload their stock of cars, which leads them to offer too much for used cars and also give other concessions to the buyer. This, of course, will have a bad effect upon general business.

In going over my records, I find that we are doing as well as we did last year; that is, in net profits. This was a big surprise to me, as I felt as though the business was going wrong, but in making an analysis, I think the general depression felt by dealers is caused by the fact that they are, as a rule, carrying a big stock of cars, collections are slow and for this reason everyone is somewhat short of available funds, and yet at the same time they may find, if they have their business well systematized, that they are still making a fair profit.

In summing the matter up, I think that in this city the passenger car business is below normal, but the truck business, I think, is greater than any previous year. Personally, I have saved myself by adding another line of trucks, which is showing a fair profit at the present time. I am seriously considering the tractor situation and feel that there is enough business to be secured along these lines, which, with the truck business and a much lessened passenger car business, will give me a sufficient volume to support my organization intact and give a fair profit.

The thousands of cars that are now running are certainly going to need repairs, and, if every dealer would get his repairshop into shape and on a paying basis, that would help to tide over any slump in sales. It seems to me that the dealer who has sufficient foresight to size up the situation and make definite plans for the future will be able to weather through whatever comes, while, on the other hand, the dealer who hasn't the foresight will probably be eliminated, and I imagine that many of the weaker agencies will close their doors.

It would seem to me that the slump is felt more severely, simply because of the very high pitch that the automobile business reached in the past 2 years. If this same condition had come about in 1914, I doubt if we would even have called it a slump. Of course, the Liberty bond issues and the raise of prices and the talk regarding the shortage of gasoline all have their effect upon the retail buyer.

I feel that, if matters do not get any worse, there will be a good many cars purchased next spring for the reason that general business has been good. Our tobacco farmers in this section have secured high prices and will, undoubtedly, purchase new machines in the spring. I notice, also, the fact that the present talk of turning the automobile factories into munition plants and on Government work has had an effect on present business, some people having decided to get new cars at once owing to the chance that there might not be a sufficient quantity next spring.—Russell P. Taber, Inc., R. P. Taber, President, Hartford, Conn.

How New War-Savings Stamps Will Help the Thrifty to Save and Lend Assistance to the U. S. Government

THE war-savings plan provided for in the last bond act puts it easily in reach of every American citizen to save money and at the same time aid the Government by supplying it with the sinews of war.

Stamps, which are the Government's certificates of indebtedness, are to be sold in two denominations —thrift stamps, which cost 25 cents each, and war-savings stamps, which cost from $4.12 to $4.23 each, according to the month in which they are purchased.

Card Given Each Purchaser

With the first thrift stamp the purchaser is given a thrift card with spaces for 16 stamps. When 16 thrift stamps have been purchased and affixed the thrift card can be exchanged for a war-savings stamp by paying the difference between the $4 the thrift stamps represent and the current value of a war-savings stamp, which in December, 1917, and January, 1918, will be $4.12, and thereafter 1 cent for each succeeding month during the year 1918.

With the first war-savings stamp obtained by purchase or exchange the owner is given a war-savings certificate containing spaces for 20 war-savings stamps. If the 20 spaces are filled during December, 1917, or January, 1918, the cost to the purchaser will be $4.12 for each stamp, or $82.40 for the full certificate, and on the first day of January, 1923, the Government will redeem the certificate at $100, giving the holder a net profit of $17.60 for the use of his money.

May Be Redeemed Any Time

Although these investments do not mature until January 1, 1923, provision is made whereby upon 10 days' written notice after January 1, 1918, such certificate will be redeemed by postmasters at their cost to the purchasers plus 1 cent a month on each war-savings stamp on the certificate.

The thrift stamps do not bear interest, but the war-savings stamps bear 4 per cent, compounded quarterly. The certificates will be dated January 2, 1918, and mature January 1, 1923.

Under the plan an amount as small as 25 cents can be invested in a Government security, and as soon as $4 has been thus invested an interest-bearing certificate of the United States Government can be secured.

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Purchase Order Systematizes Outside Business

Prices: Duplicate $15 per thousand, triplicate $22 per thousand.

THE purchase order is an order for goods to be purchased or work to be done outside of the premises. It resembles the requisition described last week, in that it performs the same function *outside* as the requisition does *inside*, but in addition it may be used for ordering work done, which cannot be done in the shop due to lack of facilities. Therefore if the requisition is essential in the shop the purchase order is just as essential for work done outside of the shop. Of course, in the latter case a letter might be written, but it is much more systematic and satisfactory to use a purchase order; there is less chance for error, it takes less time to make it out than it does to write a letter, there is less chance for forgetting the essential facts and less chance of the recipient making a mistake in filling the order.

The card has a line for the name and address of the concern to which it is addressed, and at one side is placed the name of the garage by which the order was made out. The price of these forms as quoted above includes printing the name and address of the company using them.

The body of the card contains columns for quantity, description of goods, and the price. At the bottom is a line for shipping directions and a line to indicate by whom the order was made out.

The purchase order should be used for all transactions between the shops and outside companies. For example, if a radiator is to be repaired by the local tinsmith then one of these slips is made out. If some carriage bolts not in stock are needed in a hurry, they are ordered on one of these slips. In a case such as this, where material is required quickly, it is a question whether the foreman should be allowed to make out the slip or the stock clerk. For the sake of speed it may be wise to allow the former to do it, but for the sake of system it is better to have the latter do it, inasmuch as this is part of his work. All purchases of stock either for the shop stock room or for the accessory store should be made on the purchase order.

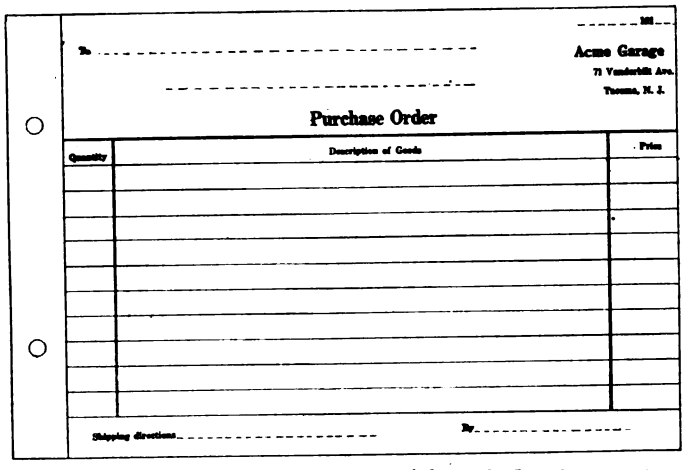
It may be desirable, in some cases at least, to delegate the work of purchasing accessories to a special man who might be styled the purchasing agent, experienced in this line of work.

On the other hand, the ordering of parts and material for the shop might be left to the stock clerk or possibly to the clerk in conference with the foreman or the superintendent or the purchasing agent, or even the owner of the business, all depending upon conditions, in which case any ordinary purchase order made out by the stock clerk would have to be O.K'd. by one of the men mentioned.

It is more systematic to have the purchase order emanate from the stockroom, even though the order is for a single article which is to be used immediately on a car and is not to be stocked. The reason for advising this procedure is that it gives a full, complete record all around, because in this case it allows the shop to obtain the parts by means of the regular requisition described last week. The method is very simple and should be plain.

Suppose, for example, that the shop desires a new windshield glass for a model H Hupmobile. This glass is not stock. A requisition is made out by the workman and O.K'd. by the foreman and if necessary the word "rush" is marked on it. It is presented to the stock clerk, who immediately makes out a purchase order and dispatches a boy to get the glass. The requisition is held until the glass is received, and when it is turned over to the shop the workman signs the requisition to show that he received it.

It may be desirable to use a duplicate or triplicate form for the purchase order, depending on conditions. In a small shop, probably, a duplicate order will be sufficient. One copy is sent out and the duplicate is retained. In the larger shop it might be desirable to have a third copy, which would be forwarded to the receiving clerk.



This purchase order is just as necessary to a man doing an accessory business as to the man running a repairshop, and where one concern has both, the same form may be used for both departments. Parts which are strictly repair parts must be purchased under the supervision of the shop, although the final O.K. may be left to a man who has the power of purchasing order. Articles purchased for the accessory store should be purchased under the supervision or with the advice of the man who has charge of the accessory department.

Prices on Motor World Forms

All prices include delivery. All forms are standard size to fit files. Binders for the Repair Order, Requisition, and Purchase Order cost $2.25 each.

Form	Issue	Page	Material	Size	Remarks	Quantity	Price
Inventory Card	Oct. 17	14	Card	5x8	Both sides	100	$1.50
			Card	4x6	Both sides	1000	13.50
Prospect Card	Oct. 24	10	Card	4x6	Both sides	500	4.00
						1000	7.50
Repair Order	Nov. 7	12	Paper and Manila	6x9	Triplicate	1000	25.00
						2000	37.50
Workman's Time Card	Nov. 14	38	Manila	3¼x5½		1000	4.50
Job Time Card	Nov. 21	14	Card	4x6		500	3.50
						1000	6.50
Requisition	Nov. 28	33	Paper	5x8	Duplicate	1000	9.00
					Triplicate	1000	13.50
Purchase Order	Dec. 12		Paper	5x8	Duplicate	1000	15.00
					Triplicate	1000	22.00
Casing and Tube Record	Dec. 19		Card	4x6	Both sides	1000	7.50
Garage Tag, Tire Tag, Battery Tag, Universal Tag	Dec. 26		Card		Three sections	1000	8.50

Motor World Simplified System of Accounting, $15. Extra sheets $2 per 100.

Maxwell Raises Its Truck

DETROIT, Dec. 7—Following are new prices of the Maxwell trucks, effective immediately:

Model	New Price	Old Price
Maxwell 1-ton truck chassis	$985	$865
Maxwell 1-ton truck chassis with cab and windshield	1,025	900
Maxwell 1-ton truck with cab, windshield and stake gate body	1,080	955
Maxwell 1-ton truck chassis, with cab, windshield and combination box stake body	1,075	950
Maxwell 1-ton truck chassis, with combination box body	1,035	915
Maxwell 1-ton truck chassis, with express canopy top and windshield	1,095	975

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Winter Business

1—Work
2—Work
3—Work
4—Work

Work! Work! Work! Work!

And Make Money This Winter

Let's Analyze YOUR Problem

YOU are sitting in your chair reading this page of Motor World. You have been thinking about your business. You have been wondering what's going to happen. You know the war has affected business, and you know winter is coming on, all of which brings different conditions.

You have noticed a quite perceptible slackening in business. This means smaller profits for you. You don't like smaller profits. You wonder how they can be made bigger.

The big question with you is keeping your business from falling off. You should reason this way:

My business needs bolstering up in some way. How can I do it?

My salesmen and mechanics are all working hard as usual but still things don't seem to move as I wish they would.

I must figure out some NEW and DIFFERENT plan of action.

What shall I do?

I must have a plan. Where shall I get it?

I guess I'll have to make it myself. Funny I never thought before of doing this.

How shall I start?

I guess I'll take some ONE department of my business that needs bolstering, and make a plan for that.

I guess I'll take the shop first. Now—what's the matter with the shop?

It isn't as full of work as it might be. Why is that?

It must be because there aren't enough people bringing cars in for overhaul.

How can I get more people to bring their cars in?

I guess I'll have to ask them.

How shall I ask them? I might call up a few, but that would be a long, slow job.

I COULD send out a letter, couldn't I?

I know a lot of car owners; in fact, I have a list right here in the office. I could send a letter to all these car owners and ask them to bring their cars in NOW when I have more time and they don't need their cars as badly as they will in the spring. Furthermore, a lot of them are going to drive their cars another year on account of the war. They ALL must have some repairs made.

That's a mighty good idea!

I'LL DO IT!

I'll get the envelopes addressed RIGHT AWAY.

I'll have the letter done RIGHT AWAY and get the printing done by a letter printer.

But now what'll I say in this letter?

Let US lend a bit of assistance right here. HERE is the letter, in the center column on this page.

USE THAT LETTER.

Have it put onto your own stationery by a letter printer. If it's well done and in the RIGHT way it doesn't even need to be filled in. All that is necessary is the typing of the envelopes. You can sign it in ink or not—just as you please. It is much better to have no attempt at filling in and signing unless you are to do a perfect job.

Any man can detect a form letter, and as long as he knows it is a form letter why go to all the trouble of signing and filling in?

Make a good printing job rather than a poor typewriter job.

If you will do as has been indicated in this story you should get a lot of business for your shop. Others have secured business that way. YOU can do the same.

Send This Letter to Your Prospects

If you have no regular prospect list, send the letter to all the good names you have had on your books during the past year or two.

War and Winter and Your Car

Now that summer has long since gone and there isn't quite as much touring as there used to be, you have had more time to give to the condition of your car.

You may have noticed numerous little spots of wear, a few little rattles, a funny noise in the motor, a worn spot in the upholstery, a spot inside the top, a piece chipped out of a tire, or several other little things.

Before running the car another season these little things should be taken care of. It sometimes doesn't take much to turn one of these little troubles into a great big one that costs a lot of money.

Even a small cut in a tire may grow into a blow-out before you realize that it is anything except a small cut.

The rush of touring work, that kept our shop jammed, has let up now and we are all squared away for winter work. Some of our men will enter their country's service soon, but they are still with us.

Right now we are well equipped to take care of your car. Both you and we have more time for this than we had a few weeks ago. Also, we have more time than we both shall have when spring comes.

It is our suggestion that you bring your car to us, let us inspect it and give you our opinion as to what may be needed. This inspection costs you nothing.

After the inspection, having the work done is optional with you.

Drive in any time.

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He Did It! YOU Can Do It!

Make Some Money This Winter

Read what Tillotson, a tire man, of Bakersfield, Cal., a town of 15,000 people, did with ONE form letter! He read the Winter Business Number of Motor World, saw all the form letters that were shown, found none that exactly suited his business, sat down and wrote some himself, sent out 250 of the first letter and is so stacked up with work that he may have to hire more help. What is the big thought? It is this: He took an idea and used it. He made it work and it is MAKING HIM MONEY. Read his letter to Motor World and the three form letters he wrote. Then go and do likewise.

His Letter to Motor World

EDITOR Motor World: Just look what your Winter Business Number did to our two-man concern (and one is in the army). Letter Number 1 has gone out 250 strong and is stacking up the work so that it may be necessary to hire another man—and this, as you know, is unusual in the slack season.

Letters Nos. 2 and 3 are yet to go out. Here's hoping for more returns.

Any assistance that I might be in helping get out any special number I will be glad to give.

I appreciate your magazine and look forward to its coming. It keeps me awake.

The methods employed by other concerns can be twisted into shape to fit this business and bring results.—L. J. TILLOTSON, Norwalk Tire Service. Bakersfield, Cal.

And Here Are His 3 Money-Getting Form Letters

Letter No. 1

Sent out Nov. 10

If you are in the habit of chucking form letters into the waste basket read the signature and chuck this now, we have received our money's worth in advertising, BUT THIS IS TIRE TALK and we know you are interested in the tires on your car.

Do you know that if you keep your tires inflated to the pressure prescribed by the manufacturer at all times they are more apt to last till the tread is all worn off, and that the fabric oftentimes will still be in good condition?

And do you know that where there is even a small blow-out and no tread, the fabric otherwise being good, a section and a reliner can be vulcanized into and new tread, be vulcanized on to the old carcass and the tire you would have to throw away can be made to give from 2000 to 5000 more miles' wear?

And do you know that this work is done here in Bakersfield and that we guarantee our retread jobs for 2000 miles?

And do you know that the cost is less than half the cost of a perfectly good new casing?

We will be glad to show you how the work is done and why we can back it up with a mileage guarantee. Drive your car around and let us look over your stock of rubber You will get our honest opinion as to whether it needs or is worth repairing.

Yours truly,
NORWALK TIRE SERVICE,
Tillotson & Snyder, Props.
By L. J. Tillotson

Letter No. 2

Scheduled to go Dec. 1

Good Morning!

How are the wife and the tires? This is our second letter and it contains something about tires that will interest you.

Did you ever buy a brand new non-skid tire and run it for about fifty miles or five hundred, and hit a bolt or a horseshoe or a bottle, and it had to have a section put in to hold the tube, and the section was smooth and a different color, and you didn't like to spoil the looks of a new tire, but you put it on any way, like it or not, and you run it for another thousand miles, and then the fabric began to show right back of the section, and the rest of the tire had the non-skid still in, and pretty soon it blew out back of the section, and you made blue vapors every time you saw a tire man?

Well we don't blame you. It is a shame to spoil a perfectly good non-skid casing with a plain section, or a peel back job.

The next time you have any hard luck like that bring the casing to us and we will put the non-skid in the same color as the tire—be it black, red or white. The non-skid put in, to conform with the shape of the tire, eliminates that flat wheel effect that causes the tire to wear out back of the plain section. We guarantee our sectional repairs to last the life of the tire.

Come in and talk tires to us. We are making it our special study to learn tires.

Yours truly,
NORWALK TIRE SERVICE,
Tillotson & Snyder, Props.

Letter No. 3

To go out Dec. 15

How Do You Do, Sir:

My name is "A Form Letter," and the boss down at the Norwalk Tire Shop sent me up to see if you have put any air in your tires since last Sunday, and he says if you haven't you had better get into the wagon and go down there where you can always depend on getting air without any oil in it. They have an automatic pump there that runs day and night, it starts pumping at 100 pounds and stops at 140.

If you don't believe me you try his air-hose about 2 a. m. The boss down there says to put 20 pounds to the cross inch in the summer time, and 20 pounds to the cross inch in the winter time. He has tried experiments and he watched experiments that other people tried, and they all found out that when the tires were kept up to pressure that they didn't increase more than three to five pounds to the hundred, whereas if they let air out the tube and the fabric caused friction and they got too hot and raised twenty to twenty-five pounds to the hundred.

And say, I saw him turn one inside out the other day and the fabric was all cracked about two inches from the top all the way 'round. And the man that owned it said: "That's an awful bum tire. Why, it didn't run fifteen hundred miles." And then the boss looked at him and said: "When did you put air in it last?"

"Oh, about a month ago, but it wasn't flat and I didn't think it needed any air. It looked all right."

"Well," says the boss, "tires are like eggs, they have got to have plenty of fresh air every day or so else there is something liable to happen to the insides and the shell busts."

I'm taking up a lot of your time but I guess you got some to spare if it is going to be money saved.

Oh, you want to know why he paid me two cents to come up here to tell you that you could get all the air you wanted free of charge. Well, I got it figured that he wants you to wear those tires out instead of blowing them out and busting them up, and then he'll get a re-tread job out of you.

He'll send my brother up to see you some day.

Good-by, one, two, three, here I go into the waste-basket.

Yours truly,
A Form Letter
of NORWALK TIRE SERVICE,
Tillotson & Snyder, Props.

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Editorial Observation

Mold Public Opinion

THE possibility of the curtailment of industry by arbitrary order has practically passed. But this does not mean that the dealer should cease to give heed to the opinion that is held by the public about his business.

The dealer should never again as long as he lives permit the public to be given the impression that the motor car is a non-essential part of American life and that its manufacture and sale is one of the frivolous enterprises of the nation.

Whenever the dealer sees a newspaper in his home town treating the motor car industry as a perfumed soap proposition he should protest. If the newspaper came out with a direct statement to the effect that the dealer was a perfumed soap merchant the dealer would go directly to the newspaper and make a strenuous protest.

What is the difference between specific cases and the general misrepresentation of the industry as a whole? There is little. Some day the damage to the dealer may be as great as though he were singled out for specific mention.

Dealers who are in the habit of giving publicity stories to their newspapers should be giving them the right kind of stories now. Most newspapers are quick to see the true situation.

One newspaper man in Columbus, Ohio, stated the other day that his paper had been very careful about printing the numerous damaging stories that were printed in the early stages of the "curtailment agitation." He said all newspapers should have been more careful. He said a damage had been done to the industry.

He also mentioned the unthoughtful practice of some dealers who still say "pleasure car" in their advertising and in conversation. If dealers persist in this, whom can they blame if their product is regarded as a pleasure product?

The industry spent millions of dollars marketing its product and at the same time it drilled this "pleasure car" term into the mind of the public. It will be hard to change it to "passenger car"—but IT CAN BE DONE.

Every dealer's business policy should cover this point. He should direct his salesmen, his service men, his office employees, those who write his advertising and all those over whom he has any control, to say PASSENGER car and NEVER pleasure car under peril of dire consequences. Only by a firm hand can the situation be remedied.

Furthermore, when selling cars, seek out the business reasons why the prospect needs the car. Few people are buying cars these days for the mere pleasure of them, and pleasure drivers are driving less. More than ever must the salesman show the prospect why a car is a necessity. He must assemble all the data he can get and make it have its most effective bearing on the sale.

Almost overnight our whole industry has changed. We must all change with it.

As to Associations

THE other day in Ohio a trade association that had been semi-alive for three years made what looks like a real start for somewhere. The story is told elsewhere in this issue.

There are many other trade associations that are semi-alive—and some hardly that. They should make an effort to see whether they are alive or can be made to live. If they cannot be made to live they might as well quit and have it over with.

There is no comfort or joy or sense in wasting time on an association that isn't any good, that is only a bother and an expense for a few men and which is not supported by a majority. Either make it or quit it.

Now—as for killing it, don't be too hasty about it. There is no locality or section or business in which an association cannot do good. If the association hasn't made good it doubtless is due to some fault that can be corrected, and the first move is to seek out the fault and make an effort at correcting it.

In the case of Ohio it had been lack of finances and aggressive management. The finances have been provided and the manager is to follow.

These two essentials are the keys to many association successes and failures. See if they don't fit the case of that organization you have in mind which is not making the speed it should.

If so, the first question is: "Where shall we get the finances?" You must give your own answer. They must come from sources with which the association members should be more familiar than anyone else. If the money can't be secured, and if no one can be found who will take an interest in affairs, the association may as well be dropped in order that busy business men may devote their time to something else.

BUT—almost any association should be able to succeed.

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This is "Pop" and the 22 kids of his employees at the mountain top. He set out to give the kids a good time—and had a cuss of a time himself

"Pop" and the Kids Got Tired of Work

"Pop" Eldridge—real front name A. S.—believes an organization that can keep the Eldridge Buick Co. on the map in Seattle is entitled to a vacation; furthermore that the wives and all the kids should go along too.

Therefore the other day he piled the whole outfit—126 in all—into 26 Buicks and acted as pilot and purse-carrier for a two-day expedition to Mt. Rainier.

The Buickers left Seattle at 8.30 Saturday morning, ate lunch at a road inn, spent the night at Paradise Inn, ambled around all Sunday morning and left for home at 2 in the afternoon.

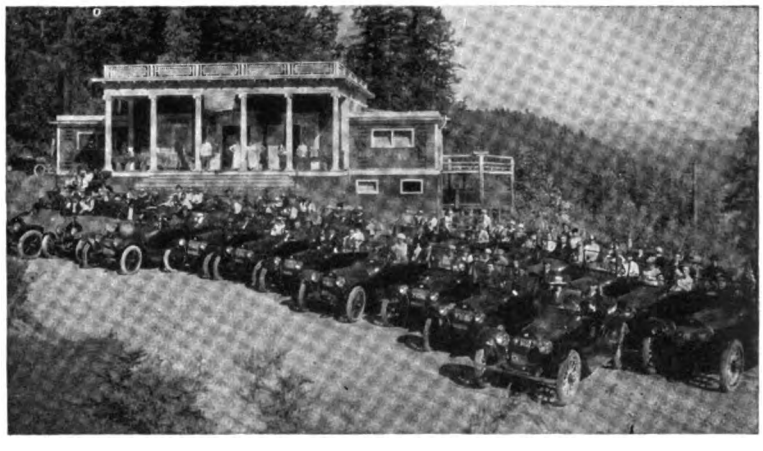
There isn't much to say except—as the old-home weekly used to say—a pleasant time was had by all.



Jack Lachopelle, who left the Buick to fight for you and me



Here's the man end of the party—"Hat's off and smile a bit, please!" The fine looking gent in the middle of the back row is "Pop" himself



No expedition would be complete without a picture of all the cars. We never yet saw an automobile man, about to have his picture taken, who didn't say: "Where'll you have the car?"



All ready to start for home. This is the place where the party spent the night. There are big fireplaces and all such cosy things inside the inn



Mountains, trees and snow and sky—and a road. In scenery like this a lot of vacationing can be done in a couple of days

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The RETAIL NEWS

EAST

Cook Bros., Utica, N. Y., have opened a salesroom at 211 Post Street and will handle Atlas ¾-ton trucks. The firm is composed of Charles K., Ward L. and Richard N. Cook.

The Elm Garage, 203 Main Street, Hartford, has moved to 59 Congress Street.

The Brodrib Service, Hartford, has established a Ford repairshop at 331 Church Street.

The Palace Auto Service Co., Hartford, has moved from 348 Trumbull Street to 546 Asylum Street.

Barnard & Beeman, Hartford, Oldsmobile distributers, have taken the salesroom recently vacated by the Palace Auto Service Co. at 348 Trumbull Street. The firm conducts the adjoining garage.

The New England Tire & Rubber Co. has opened a store at 100 Allyn Street, Hartford.

The Laderer Co., South Bethlehem, Pa., will remodel part of the Nixon Hotel Building for a Maxwell salesroom. The agency will be styled Diamond Sales Co.

William Holshue, Shamokin, Pa., has remodeled part of his livery stable for an Oakland salesroom and garage.

John McLaren, W. Metkiff and R. Rudolph have formed the T. J. Cooper Rubber Co., Jersey City, with a capital of $75,000, to deal in tires.

The Union Tire Co., West New York, has been organized to deal in tires and accessories, with a capital of $6,000. The incorporators are Emma Tilfenbronner, C. E. Weber and H. B. Fischer.

SOUTH

The Grant Motor Sales Co. has opened offices at 821 Broadway, Nashville, to handle the Grant car. J. R. Melton is manager, and with him are associated H. K. Smithson, R. P. Kimmons and T. J. Osborne.

MIDDLE WEST

The Atwood Co., Cleveland, has taken over the Boyd Tire & Rubber Co., at Jefferson Avenue and Ontario Street. Charles G. Atwood, formerly president and sales manager of the Atwood Automobile Co., is the head. The company will manufacture the Atwood gear shift lock and the Miller tire lock and control the distribution of the Cleveland Creeper tractor in northwestern Ohio.

Motor Service Co., Cleveland, incorporated for $150,000, has purchased a lot on Detroit Avenue, 135 x 160. A two-story garage and service station will be erected. The company will have the agency for a truck storage battery and sell accessories.

Hay Bros. Motor Co., formerly styled Hay Bros., Kewanee, Ill., will remodel its building as a King service station and agency and accessory salesroom.

George W. Ehrhart, Decatur, Ill., will move into a new garage, Main and Franklin Streets, Dec. 15.

Lee & Pike, Fond du Lac, Wis., dealing in tires and supplies at South Main Street and Western Avenue, have dissolved partnership. R. H. Lee has sold his interest to W. H. Collins. The firm name henceforth will be Pike & Collins.

Al Bellfrom & Son, Marquette, Mich., have purchased the stock of the Negaunee Garage and will handle a line of parts for Ford cars.

Roy Winsor, Petoskey, Mich., has severed his connection with the Petoskey Garage & Sales Co., where he had charge of the repair department, and has taken over the management of the Reo Garage on Lake Street.

The Overland Quincy Automobile Co., Quincy, Ill., formerly styled Irwin Overland Co., has been reorganized with Frank R. Lusk as manager; M. E. Lusk, wholesale manager; A. Wittler, service manager; Frank Lipps, parts manager, and B. H. Schallenberg, in charge of the used car department.

Charles Brandon, Springfield, will remodel three storerooms on South Sixth Street for a sales agency and service station. Brandon will be distributer for the Chevrolet in the Sangamon County territory.

The Washington Motor Car Co., Madison, Wis., is a new Oldsmobile dealer in western Wisconsin.

The KisselKar Co., Kissel dealer, and the **Edwards Motor Car Co.**, Dodge dealer, Milwaukee, have opened a service station at Seventh and Chestnut Streets, with more than 160,000 sq. ft. of floor space.

J. W. Moore, Boscobel, Wis., Ford dealer, has purchased the garage of Dempsey & Getchel at Fennimore, Wis., and will conduct it in connection with the Ford garage now being completed at Boscobel.

The Wisconsin Tractor Sales Co., Oshkosh, Wis., has been incorporated with a capital stock of $5,000 to deal in tractors and farm machinery. The incorporators are A. D. Paine, John F. Wilke and A. A. Schwertfeger.

New Garages

M. F. Roberts.....Mt. Zion, Ill.
Charles Brandon .....Springfield, Ill.
C. H. Steward.....Paxton, Ill.
Junghojohann & Hayes.....Decatur, Ill.
Granere & Johnson.....Moline, Ill.
Cyril Moller .....Quincy, Ill.
L. A. Walker.....Libertyville, Ill.
George W. Ehrhart.....Decatur, Ill.
Knickerbocker Garage .....Cleveland
Franklin Auto Shop.....Franklin, Ohio
Spot Garage .....Youngstown, Ohio
Cleveland Auto Service Co.....Cleveland
Trumbull Republic Motor Co..Warren, Ohio

NORTHWEST

John J. Domek, Glasgow, Mont., has bought the Overland Garage from Ezra Hill and O. M. Christinson.

Theo. Hermanson and Lep. Seppala, Buffalo, S. D., have leased the Buffalo Garage from William Johnson.

Ed. Tobey, Pierpont, S. D., has leased the City Garage from A. L. Wilson.

Hammer & Johnson, Platte, S. D., has bought the W. J. Stofen Garage.

J. A. Murphy and W. L. Ray, Hancock, Minn., have bought the Milton Frey Garage.

Z. E. Pauley, Lewisville, Minn., has taken over the management of the Lewisville Garage.

T. S. Bronken, Circle, Mont., has leased the Bauer Garage and machineshop.

B. M. Calkins, Fargo, N. D., has bought the interest of B. A. Orr in the firm of Calkins & Orr, 629 Second Avenue.

Freer & Gericke, Hardin, Mont., has bought the Auto Repair & Accessory Co. repairshop.

The Gibbs Auto Co., Grand Island, Neb., has bought the Dahlstrom Garage and machineshop. The company is composed of G. Gibbs, F. H. Schlotfeldt and E. C. Guthman, who plan to remodel the building.

Oldsmobile Sales Co., Aberdeen, S. D., has opened at 414 S. Main Street.

Monitor Motor Sales Co., 1118 Hennepin Avenue, Indianapolis, has enlarged its quarters by adding the salesroom at 1120 Hennepin Avenue. The company distributes Monitor and Nelson cars. W. G. Wordingham is manager.

P. H. Johnson & Son, Tracy, Minn., bought Motor Inn from W. L. Hodge.

Phil Reimers, Concord, Minn., has bought the C. R. Borg Garage.

E. C. Norman, Winthrop, Minn., has bought the Scholl Garage.

A. E. Bihler, Inc., Omaha, has moved into new quarters at 1114 Dodge St.

The Ft. Dodge Overland Co., Ft. Dodge, Iowa, has improved its salesrooms and added an accessory department.

The White Way Garage, Columbus Junction, Iowa, has taken the Ford agency and has just completed an addition to its building.

The Harrison Auto Co., Hampton, Iowa, has moved into new quarters and added the Cadillac.

Thompson Bros. Auto Co., Nevada, Iowa, has bought the Hawkeye Auto Co.

The Clear Lake Auto Co., Clear Lake, Iowa, has changed its name to Overland Mason Co.

W. H. Maxwell, Winterset, Iowa, has moved into new quarters.

John Winer, Staceyville, Iowa, has sold his interest in a new garage to John Weber.

W. H. Smith, Van Cleave, Iowa, has bought the Gallentine Garage.

New Garages

Iowa Haynes Motor Co....Burlington, Iowa
Motor Inn .....Sheldon, Iowa
General Auto Co.....Clinton, Iowa
Kauritzen & Stuart.....Waterloo, Iowa
Huer & Holt.....Wheatland, Iowa
Ringrund Motor Co.....Lemars, Iowa
Standard Oil Filling Station..Waterloo, Iowa
Standard Oil Co.....Ft. Madison, Iowa
George McWilliams .....Cando, N. D.
C. W. Thompson.....Sioux Falls, N. D.
Richard Fiedler .....New Leipsic, N. D.
Ben Gritz (repairshop) ..Grand Forks, N. D.
C. J. Grass (Overland).....Owatonna, Minn.
Jens Grantley .....Clearbrook, Minn.
Stephen Koppy .....Roscoe, Minn.
M. Johnson and W. Doherty..Winner, S. D.
Drayton Motor Sales Co... ..Drayton, N. D.
Thos. Meraw and W. Gamble.Cloquet, Minn.

SOUTHWEST

Charles Robinson, Bucklin, Kan., has sold his garage and service station to M. E. Nela, Garden City.

Williams Motor Co., El Dorado, Kan., has moved to temporary headquarters at 300 East Central Avenue. It will be located here until Jan. 1, when it will move into a modern garage and salesroom at 309 South Main Street.

J. Bunker, Kiowa, Kan., has moved his garage and machineshop to a new building on West Main Street.

The City Garage, Agra, Kan., has again opened with Ernest McNeeley as manager of the repair department.

Clay Henderson, Imboden, Ark., is remodeling his store building into a garage.

N. Wasson, Duncan, Okla., has installed a steam vulcanizing plant in the Duncan Garage.

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Walsh & Johnson, Tulsa, have established a branch in Oklahoma City.

C. M. McCombs, Enid, Okla., has bought the Delmar Garage.

Campbell & Minich, Marceline, Mo., will open a repairshop.

W. R. Strickland, Rockport, Mo., has formed a partnership with George Deatz and James Templeton under the style of Atchinson County Motor Car Co.

Guy Byers and Herman Hunn, Arkansas City, Kan., are the new managers of the South Summit Garage.

William Myer, Alva, Okla., has bought the garage of Berry & Son.

Grant Irwin, Ada, Okla., has bought the garage of W. Allen & Son.

Henry Nabors and Noble Cole, Frederick, Okla., have opened a vulcanizing and retreading establishment on West Grand Avenue.

C. A. McDonald, Ardmore, Okla., has bought the automobile repair business of Leo Rice. Mr. Rice will devote all his time to the battery repair work.

T. A. Marion, Tulsa, Okla., has taken charge of the Southwestern Garage repairshop at 211 North Main Street.

W. L. Eby, Tulsa, Okla., formerly with the Moon agency, is now proprietor of the Hoburt Garage on South Main.

Carey Sowder, Madison, Kan., has bought the Barnard interest in the Madison Auto Co. and Harry Colton is now doing the work at the garage.

The Welch Auto Co., Macksville, Kan., has bought the machineshop of L. M. Turner. Turner is now in the repair department of the Wolf & Prose Garage.

J. M. Holmes, Leroy, Kan., who handles the Overland, is building a showroom, 40 x 100.

A. L. Snodgrass, Augusta, Kan., is erecting a new building for his Ford display rooms.

Haden's Garage, Cunningham, Kan., has purchased the Rayl Garage.

George Tunnell, Larned, Kan., has bought the automobile business of Tunnell & Timken.

E. W. Willard, Morrill, Kan., is planning an addition to his garage.

Will McKinney and Logan LaRue, Pittsburg, Kan., will conduct a motor truck business.

Ellesbury & Yingling Bros., El Dorado, Kan., have let the contract for remodeling their building.

Walter Schade, Manhattan, Kan., has rented the Whitelock Garage. He has been operating the Blue Valley Garage.

William Farrell, Manhattan, Kan., has bought the garage business of A. F. Whitelock.

Art Johnson, Savonsburg, Kan., has bought from J. H. Horden an interest in the Horden Garage and the new firm will be known as Horden & Johnson. Mr. Johnson and Oscar Hill will be in charge of the new repairshop and Mr. Horden will devote more of his time to the sales end.

H. Havener, Solomon, Kan., has opened a repairshop.

De Soto Tire Shop, De Soto, Kan., has moved to the old Abbott building, Second and Peoria Streets.

S. W. Benham & Son, Columbus, Kan., are remodeling a livery stable into a garage.

Lee Allen Beverly, Crowell, Tex., will open a vulcanizing shop.

The Panhandle Motor Co., Amarillo, Tex., Maxwell dealer, has been reorganized with S. F. Sullenbarger as president and S. E. Freeman, secretary and treasurer.

BUICK AUTOMOBILE AGENCY PHONE 888 ELECTRIC WORK A SPECIALTY

WORLAND GARAGE COMPANY, INC.

H. B. PARIS, Manager

STORAGE ▫ REPAIRING ▫ LIVERY

BATTERIES REPAIRED AND RECHARGED
TEXACO GASOLINE AND OILS
TIRES, ACCESSORIES

Worland, Wyo.,

This letterhead was designed by Motor World's typographical department for a garageman and dealer in Worland, Wyo. He had no letterhead at all. This type can be copied or approximately imitated by prctically any printer

F. L. Sweet, Eagle Pass, Tex., has opened an accessory shop.

Turner & Stockett, Canyon, Tex., have bought the Travelers Garage.

A. J. Hosfeld, Owensville, Mo., has bought the Owensville Garage from John F. Winter.

New Garages

Hobble & Edgington.....Sedgwick, Kan.
F. M. Reinsmith.....Monett, Mo.
R. F. Lang.....Plentywood, Mo.
Palace Garage .....Kiowa, Okla.

MOUNTAIN

G. F. Little, Littleton, Col., has bought the Arapahoe Garage from E. G. Dice.

PACIFIC COAST

Child, Day & Churchill, 1217 First Avenue, Spokane, accessory dealers, plan to enlarge every department of the company's store, giving the firm three times its present floor space.

William T. Patten Motor Co. has been made distributer of the Chalmers line for western Washington under factory supervision.

The Diven Tire Co. has been formed by Fred Diven, Seattle, and will distribute Brunswick tires in Seattle and King County.

The T. S. Steel Co., Walla Walla, Wash., will install a complete service station for the Eveready storage battery.

B. F. Adair has bought a half interest in the Interstate Auto Co., Spokane. The firm will handle the Velie.

John N. Sharp, Portland, Ford dealer, has moved to a new two-story building at Twelfth and Park Streets.

New Garages

Spokane Auto. Co.....Spokane
Overland Pacific Co.....Portland
Goon Dip .....Portland
G. H. Carl.....Carlton, Ore.
Yellowstone Motor Co....Yellowstone, Idaho
S. D. Vincent.....Portland
Charles H. Fox.....Portland
Herbert Cramer .....Hood River, Ore.
Charles Fox .....Portland
Willard Service Station.....Spokane

Prest-O-Lite Co., Inc., has appointed the following representatives: Fremont Storage Battery Co., Cornelius Block, Fremont, Ohio; B. A. Swenson, 522 Broad Street, Providence, R. I.; Schlaper Hdwe. Co., 815-819 College Avenue, Appleton, Wis.; Battery Shop, Inc., Bellingham, Wash.; Moscow Tire & Battery Co., cor. Main & 5th Streets, Moscow, Idaho; Prospect Storage Battery Service Co., 229 Prospect Street, Cambridge, Mass.; Brondel & Lietzan Battery Service Co., Owosso, Mich.; McMorris Electric Co., 113 N. 5th Street, Henryetta, Okla.; Hardison & Arthur, Lewisburg, Tenn.; Jeager Tire Store, 401 N. Wash Street, Lansing, Mich.; The Colgan Tire Co., Waycross, Ga.; Bangor Garage, Bangor, Mich.; Indiana Motor Car Co., 118 E 53d Street, Chicago, Ill.; The Electric Service Co., 10th & A Streets, Fort Smith, Ark.; The Swan-Bower Co., 530 Market Street, Steubenville, Ohio; Blytheville Construction Co., Blytheville, Ark.; Hoyt's Car & Carburetor Co., 3380 Wash Street, Jamaica Plain, Mass.; Carolina Auto Co., 1400 Main Street, Newberry, S. C.

Philadelphia Storage Battery Company has appointed the following representatives: Ignition Service Co., 1235 Bedford Avenue, Brooklyn, N. Y.; R. B. Randolph Motor Co., 67 Broadway, Asheville, N. C.; Shobe & Bailey, Rochester, Ind.; F. A. Albrecht, Janesville, Wis.; Thompson Garage, Salisbury, N. C.; Deal Auto Exchange, Wadley, Ga.; Jacobson-Austin Auto Co., Madison Wis.; Fort Dodge Auto Co., Fort Dodge Iowa; Peoples Auto & Supply Co., New Bern, N. C.; Smithfield Garage & Machinery Works, Smithfield, N. C.

Tin for Private Plants

WASHINGTON, D. C., Dec. 7—The Navy Department will release a great amount of commandeered tin now held in New York warehouses to private industries throughout the country. This agreement followed the protest of the Department of Commerce, which was to the effect that many private concerns were suffering a shortage of tin and were seriously handicapped by lack of metal.

The American Steel and Iron Institute, designated as consignee of all imported tin by the War Industries Board, will endeavor to secure another supply of tin for the navy's needs, and in the future an institute sub-committee will look after the navy's special needs.

This new plan is said to place all the tin supply of the entire country under centralized control, thereby assuring tin to the Government departments and to private firms on an equitable basis.

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Ed Rodgers and the Quart of Oil

DO you know how much YOU make on a quart of oil? Have you a system that tells you what it costs to sell oil?

Do you KNOW or do you just GUESS?

You should get a system. You can get system instruction from any young accountant in your local banks at reasonable rates, or you can buy the Motor World Simplified System of Accounting. It is making money for nearly 2000 dealers and garagemen. Why not let it make money for you? Write to Motor World NOW and ask about it. Get started right before the end of the year.

You can't sell anything and go straight without system. And you must have system if you are to survive the new wartime conditions. Are you fitted to survive?

Now read below the story of Ed Rodgers. Are you a profit-cutter? If you are you had better get a system and find out how near the danger line you are cutting.

ED RODGERS is an accessory dealer in a middle western town having a population of about 8000.

This year he will probably do a gross business of $35,000.

He estimates his fixed charges at 20 per cent of his gross business.

He sets a fixed gross profit of 30 per cent on his selling price.

That means a net profit of 10 per cent, or about $3,500.

But on Dec. 31 Ed's books aren't going to show a net profit of $3,500—it'll probably be a lot less.

Here's why:

Two business parasites have got a grip on Ed's business. He may not know it, but they are right on the job.

These parasites are "Cost Accounts Figured Wrong" and "Profit Cutting." This last is a big brother to the other.

Cost accounting to most of us is a tangled skein that starts nowhere and leads back to the same place. Because of it, many men are very much pained to discover at the end of the year that their cost of doing business is greater than they think. Many a hard earned dollar is lost there that should appear on the right hand side of the ledger.

How about *your* profits?

Do you know what they really are?

Have you ever wondered why they are not larger?

This year you planned to sell a certain number of cars, and a certain quantity of accessories. Did you do it? The chances are you sold even more. But how about the Profit—where is it? Is it real or imaginary?

In short, do you actually know just where you stand or are you an Ed Rodgers?

Consider the many items that are included in your cost of doing business—salaries, rent, light, heat, repairs, insurance, interest charges and other miscellaneous expenses? Do your cost figures include *all* these items—ACCURATELY? If they don't, money is leaking out of your cash drawer daily.

Let's figure out, for example, what it costs you to handle lubricating oil. All accessory men handle it. It's an easy item to figure on.

When oil is delivered to your establishment that part of it that is to be sold in bulk must go into your storage tank and from there into the crank-cases of your customers—two operations. This involves an expenditure of time. It is a direct charge against every quart of oil you sell. Also, each sale must bear its part of your overhead expense—floor space, wastage, bookkeeping, etc., etc.

The oil manufacturer's list price that he publishes to the consumer is one which in his judgment indicates the price a motorist should pay. It is fair and moderate. When you maintain that list price you get a fair, substantial net profit after you have deducted from the discount you receive your actual cost of doing business.

Now assuming that you are selling at list prices, let's get busy with the figures and see what it costs you to sell oil and what your profit actually is.

Your overhead is, say, 20 per cent of your gross business.

The brand of oil you handle costs, say, 60 cents per gallon, less 30 per cent discount. You sell it at 20 cents a quart in bulk.

Here's the dope:

Sold, 1 gal. oil at 20c. a quart	$0.80
Bought, at 30 per cent discount off 60c. list	.42
Gross profit	$0.38
Overhead at 20 per cent of 80c.	.16
Net profit, per gallon	$0.22
Net profit, per quart	.05½

This is a good profit—fair to you and to your customers.

Now let us take a look at another phase of the game—*profit cutting.*

You hear that your competitor down the street is cutting the price on the same brand of oil.

"Well," you say, "I do more business than he does. If he wants to start something, I'll show him where he gets off at. I'll cut too."

Down comes your price to 15 cents a quart—and with it your profits, for you have cut your profit to ½ cent per quart. If you slip up somewhere, if your overhead shoots up ever so little, your profit is entirely wiped out and you are then doing business for your health instead of to make money.

Don't do it.

It isn't necessary.

Let your competitor do the cutting if he wants to. It's an easy way to fall into and a hard one to get out of. Once you start it you weaken your whole sales policy. If Mr. Competitor wants merely to make sales instead of money it's not your money he's losing. You are in business to make a fair profit. Why not stick to it?

If your competitor wants to flip his lighted Fatima into his gas tank is it any reason why you should flirt with death that way?

Doing business at an inadequate net profit must lead to disaster.

Sound sales policies and fair dealing build stability in business, and Sound Sales Policies do not include profit cutting.

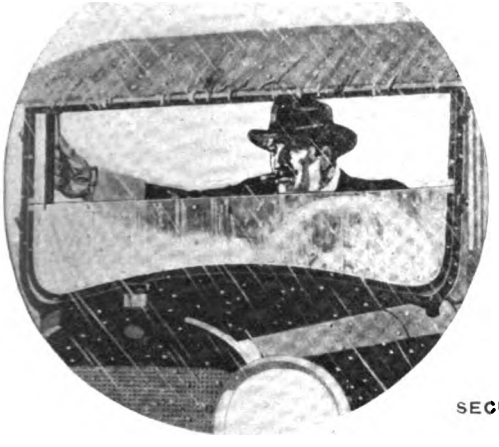
The customers you are proud of—those who are worth while and from whom you make money—are not the ones who buy on a purely price basis. They buy for service—for long run efficiency.

They want *quality goods.* They know that pared down prices usually mean pared down values; that pennies saved are often danger pennies which jeopardize dollars; that the standard-priced, trade-marked article on which the manufacturer stakes his reputation is the one that is worth while and is worth paying a fair price for.

Don't be like our hypcthetical friend, Ed Rodgers. *Know where you stand all the time. Know whether your profits are imaginary or real.* If you do you won't get any painful surprises at the end of the year.

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Accessories

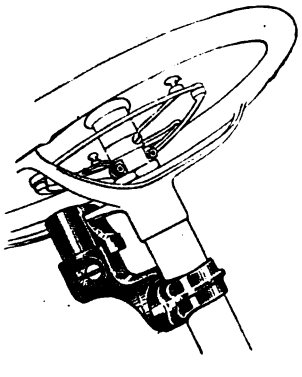


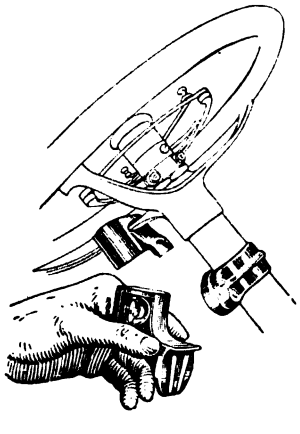
MARVEL WINDSHIELD CLEANER

It is equipped with a rubber edged wiper, which may be moved back and forth across the top section of the windshield, thus keeping it clear. It is attached in a few seconds and is automatically adjusted. Price $1.50.—Marvel Accessories Mfg. Co., Cleveland, Ohio.

GOODRICH STEERING LOCK

A simple, easily-attached steering wheel lock, which prevents the steering wheel being turned. One part is attached to the steering column, another to the spoke of the wheel, and there is a connecting plug containing the lock. When the latter is slipped in place and the key turned the wheel is immovable. To operate the car this connecting part is removed. It can be installed in the time it takes to place four screws; there are no holes to drill. It is finished in black japan.—Goodrich-Lenhart Mfg. Co., Widener Building, Philadelphia.



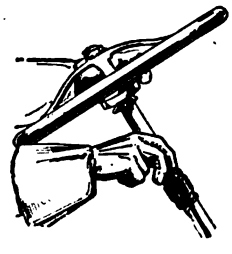


AUTOMOBILE HARDWARE

A complete line of automobile hardware is manufactured from door handles through to robe rails and hearse fittings. Included among these is a radiator cap for Fords selling for $28.50 per 100, in nickel finish, and $26.50 per 100 in polished brass finish. Special fittings for rebuilt cars are also made, the battleship type fillers for racing cars costing $4 each in nickel finish.—Attwood Brass Works, Grand Rapids, Mich.

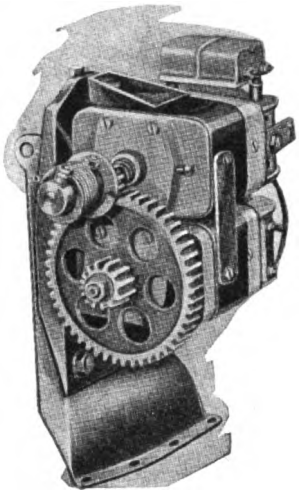
SECURITY LOCK FOR FORDS

A steering-wheel lock which allows the wheel to turn without affecting the front wheels. The device is nickeled brass and is furnished with two keys. No filing or drilling is necessary, as it screws on. Price $5.—Security Auto Lock Co., Chicago.



LITE-A-FORD

A device mounted on the steering column for dimming the headlight. There are seven distinct degrees of brilliance, from a mere glow to an intense white light. It measures 1⅝ in. in diameter by 3 in. long. Price $2.50.—Hastings Mfg. Co., 208 Michigan Ave., Hastings, Mich.



GRAY & DAVIS SYSTEM FOR FORDS

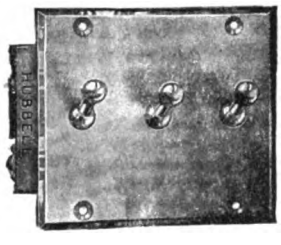
The new Gray & Davis starting and lighting system for Fords is a 6-volt, two-unit design consisting of a generator with a regulator cut-out, starting motor, battery and battery box, lighting and starting switches, sprocket chain, wiring and all other apparatus necessary for installation. The generator is driven from a sprocket in the crankshaft by a silent chain. The regulator cut-out controls the generator output, as well as acting as a cut-out. The battery is in a steel box. The only part removed from the engine in installing the outfit is the pulley on the crankshaft, which is replaced by a sprocket. Price $85.—Gray & Davis, Inc., Boston.

BANNER SIGNAL LIGHT FOR FORDS

A tail light and signal lamp combined. The application of the brake pedal raises a shutter displaying the word "Stop." Price, complete, $5.—Banner Accessory Mfg. Co., 1314 South Seventh Street, St. Louis.

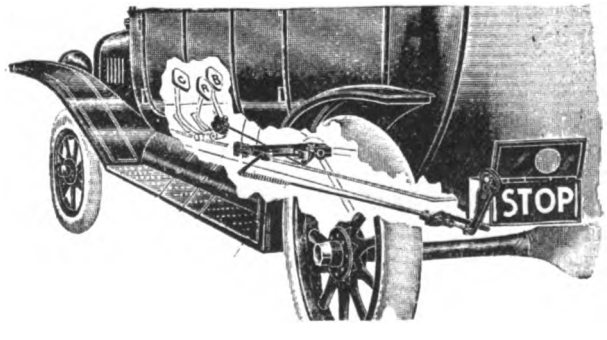
MICA FLAKE LUBRICANT

Mica flake lubricant is intended to be mixed with oil or grease, thus preventing the film of oil from becoming destroyed or consumed quickly. It is said to completely separate metal surfaces of journal and axle. Mica flake builds up the low places and fills the surfaces worn irregularly, giving the surface a superficial finish and a degree of smoothness not to be obtained on the surface of the metals themselves, it is claimed. It is put up in 1, 5, 10 and 25 lb. cans and 100 lb sacks. Tire powder is also made to take the place of soapstone. It comes in a 25 cent metal tube and a 15 cent heavy fibre tube.—U. S. Mica Mg. Co., Lytton Building, Chicago.



HARVEY TOGGLE SWITCHES

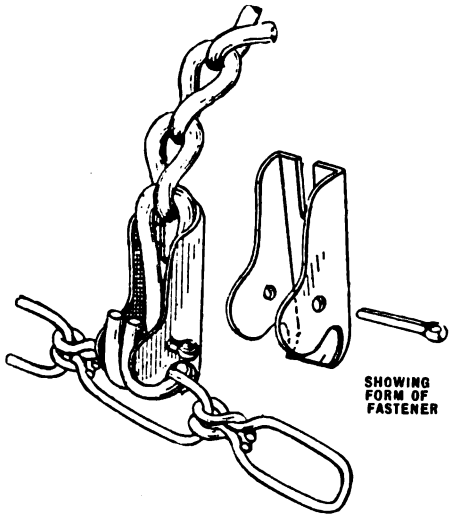
Convenience of operation is the feature of the Toggle switch, in which the lever is pushed up to close the switch and down to open it. It is stated that the switches have sufficient carrying capacity for the load of almost any battery or magneto circuit. They are furnished in single coil and three-way type with flush plate, single coil and three-way with recovered plate, momentary contact, double form of momentary contact for battery-magneto circuits, single coil and three-way lock switches. Lighting systems of more or less special character can be arranged by gang combinations made up of these varied types.—Harvey Hubbell, Inc., Bridgeport, Conn

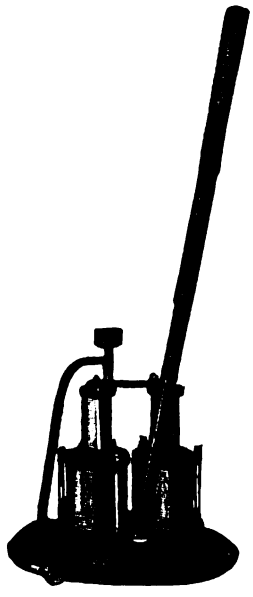


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Q. D. CHAIN FASTENER

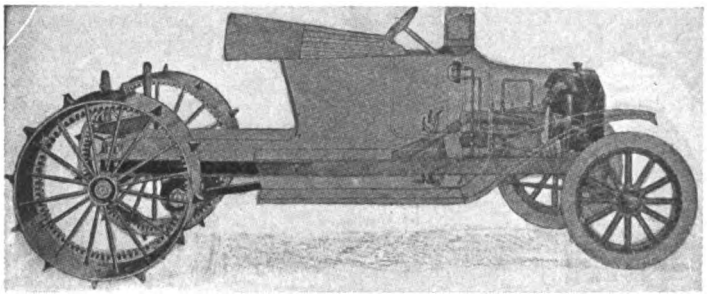
The Q. D. Fastener is a quick-detachable cross-chain device that is attached without hammering or bending the horse-shoe hooks of the cross chains. With it a new cross chain can be attached without removing the other chains from wheels. The average chain carries eighteen cross chains to a wheel, and this attachment is to be placed at each end of cross chains. Price, $1 a dozen, $2.50 for 3 doz., $4.50 for 6 doz.—Cross Chain Fastener Co., Cleveland, Ohio.





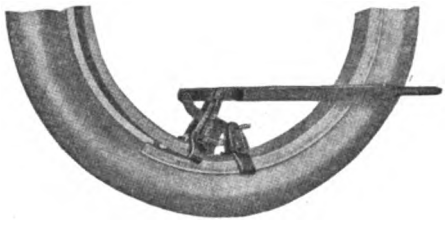
DEAD EASY TIRE PUMP

It has two cylinders and is clamped to the running board, being operated by a vertical lever that is swung back and forth. Each cylinder has a high and low pressure chamber, the low pressure operating to 40 lb. and the high pressure cylinder to that of the tire. It is stated that because of the link and rocker arm construction, producing a toggle action, each piston travels rapidly at the beginning of the stroke when the load is light and becomes slower and more powerful when the load is greatest. The leverage on the pump is also increased, due to the method of mounting, and length of the handle. It is said that 300 lb. pressure may be obtained. When not in use the pump may be carried in the tool box where it is possible to bolt it permanently to the running board. Price is $15.—Globe Manufacturing Co., Battle Creek, Mich., U. S. A.



STAUDE MAK-A-TRACTOR

The Mak-A-Tractor consists of an extra pair of heavy wheels which are driven by pinions on the Ford rear axle shaft which engage internal gears on the driving wheels. It is designed for farm work or heavy hauling. In the former case cleats are required on the wheels. Seven different styles of cleats may be purchased, depending on the work to be done. It is provided with an extra oiling system and a special cooling system which employs a small part of the exhaust to accelerate the flow of the water. The price of the outfit with one pair of six-tooth pinions is $225; with six and eight-tooth pinions, $240; with two sets of pinions and bolster attachment for trailers, $260; two sets of pinions and a belt power attachment, $280; two sets of pinions, bolster and power attachment, $300. — E. G. Staude Mfg. Co., St. Paul, Minn.

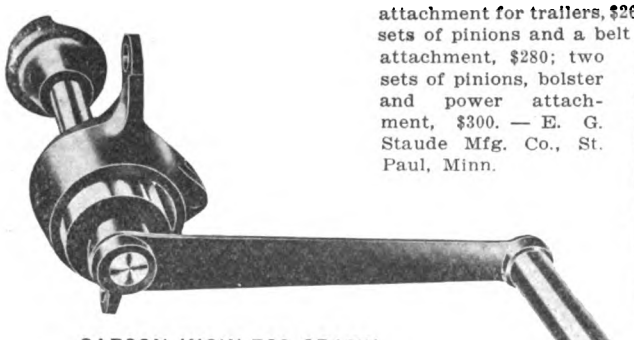


BEACH RIM TOOL

It fits all types and sizes of transversely split rims and opens the rim ¼ in., raising one end 2 in. and carrying it over the other 4 in., thereby contracting the rim. Price, $7.50.—The Greb Co., Boston, Mass.

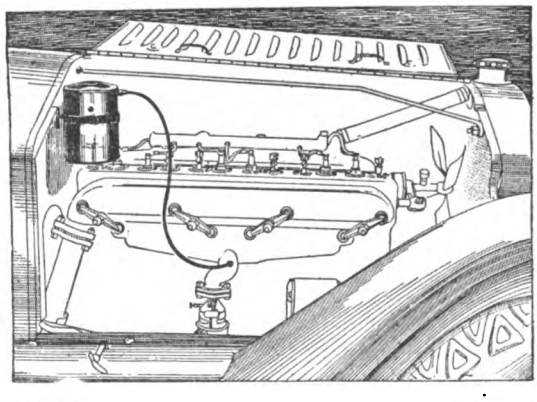
THE GED

This gasoline economizer and decarbonizer consists of a cylindrical tank partly filled with water. From the top of the tank a copper tube leads to the inlet manifold of the engine. There are two air inlets into the tank, one at the side, under or behind a baffle plate, and the other centrally in the top. When the engine produces a suction effect during the inlet stroke, air is drawn into the tank through both inlets, and that entering through the inlet at the side is forced to pass through the water around the lower edge of the baffle plate, so that it takes up all the moisture it will hold. This humidified air mixes with the dry air entering the tank on top and then passes onto the manifold. The installation of the device is a simple matter. The water capacity is about 31 ounces and this holds out for about 150 miles on the average car. — Atlas Auto Specialties Co., New York.



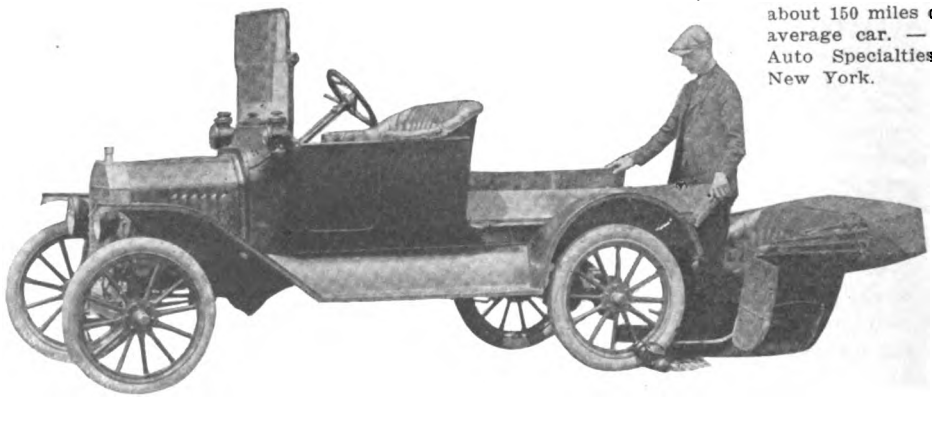
CARSON KICKLESS CRANK

A crank for Fords which is sold with a guarantee that if any one is injured using it $100 will be paid to the victim. It is readily installed and simple. Price $7.50.—Carson Mfg. Co., Richmond, Va.



HEATH-DUPLEX UNIT

It permits a Ford to be converted readily into a 1000-lb. delivery car. The truck body folds up under the rear seat and when the tonneau is in place there is nothing to indicate that the car is used as a truck. The tonneau body slides off and the truck body unfolds. Attachment can be made within a few hours.—McCord Mfg. Co., Detroit.



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How to

Plan a New Building

11—Locating the Wash Stand

Two Types of Wash Stand Described—Stationary and Traveling

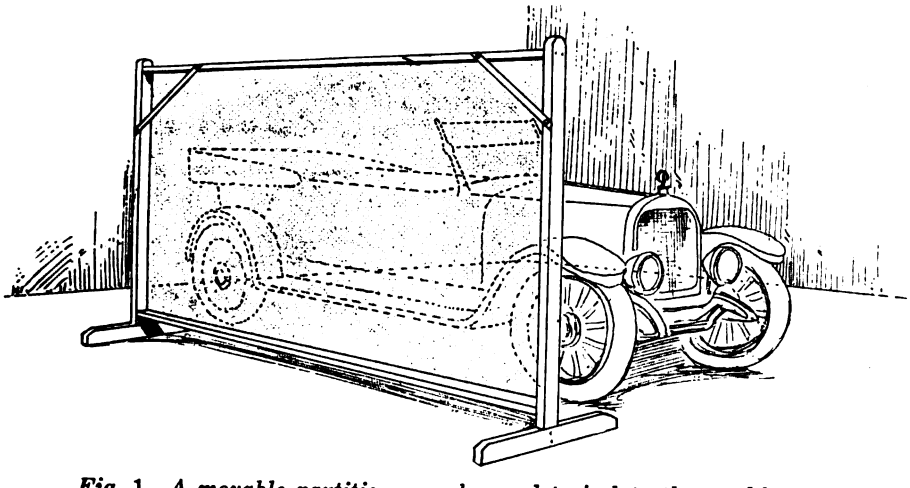


Fig. 1—A movable partition may be used to isolate the washing stand

THERE are two types of wash racks which may be roughly described as stationary and traveling, the latter being an entirely successful innovation produced by the designer of the Hudson Motor Car Co.'s garage in New York City.

If the former type is decided upon the first question to be settled is its location and after that its construction. If it is placed in the aisle it may save space, in that all the car stalls fronting on the aisle may be used for the storage of cars, but on the other hand such position for the wash rack may interfere with cars entering or leaving.

It is impossible to lay down a hard and fast rule regarding the location of the wash rack, but in general this may be said: In a city most or all the washing is done at night; many garages have no day washers. This means that when the washing is done there is little or no traffic in the aisle. Therefore, if the wash rack is placed in the aisle it does not seriously interfere with traffic. On the other hand, in country garages the washing is usually done in the day and there may not be any night washers. Therefore, it might be a serious inconvenience to have the wash rack in the aisle.

However, this works out very well, inasmuch as cars are usually out in the day when the wash rack is being used and at night when it is not being used cars may be placed thereon, so that no space is wasted. Care should be taken, of course, to see that the cars allotted to this space should be ones which are usually out all day long.

If the wash rack is placed in the aisle it should be put at the rear so that stragglers coming in at night will not interfere with washing. Furthermore, the cars on spaces facing the wash rack should be ones which are invariably in early so that when washing commences there will be no interference due to cars moving in and out of these spaces.

It is not usual to provide partitions for enclosing the wash rack, but it is advisable to do so. Usually the wash rack may be placed in one corner so that by erecting a partition on one side only it is possible to enclose three sides of the space, leaving only the front exposed. This keeps the water from splashing on nearby cars.

The length or width of the wash rack should be 14 or 15 ft. for two reasons—first because this is a very convenient size for washing and second because it allows two cars to be stored with space when it is not being used for washing.

If it is not desirable to have a partition the full height it will be found that a partition 3 or 4 ft. high will serve almost as well, Fig. 1.

The drainage of the wash rack, of course, should be in the center of the space and it may be desirable in order to prevent water from running out on to the floor to raise the floor slightly in a sort of a bead all around the rack.

(*Continued on page 43*)

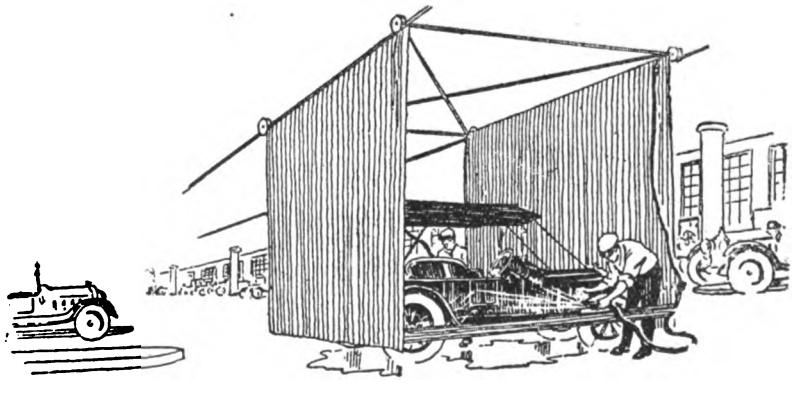


Fig. 2—An overhead, hanging washing screen may be used

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Explaining the New Plan

Bulletin No. 83.
Issued by F. E. W.,
April 3rd, 1917.

TO OUR DEALERS:—

As our volume of business increases the demand for help from our Service Department increases, although it should decrease. As your volume of business increases you certainly are justified in enlarging your organization whereby you will maintain a shop and enough mechanics to properly look after the cars which you sell in your territory.

The better service you give to buyers, the better your reputation and the greater your volume of business. Therefore, as your volume increases the demands on us should decrease in exact proportion to the efficiency which you display in the handling of your business.

We should not do your work and we are sure that you do not want us to do it. On the other hand, we are anxious and willing to pass on to you such expert knowledge as we may possess, and so we have just inaugurated a new department in our office under the charge of Mr. Fred Wyman, who will be known as a Service Manager.

It will be a part of his work to answer all trouble letters and we will welcome from you any letters asking for advice in respect to the care of Buick cars, and Mr. Wyman will take pains to explain matters to you in the hope that relief will result.

This new feature of our business should be very helpful to you, thus lessening the demand for service travelers. However, if correspondence fails to get results then we will endeavor to get our service traveler to you, hoping thereby that he can suggest the proper remedy. He will, with your permission and co-operation, instruct you and your employees on the care, maintenance and repair of Buick cars and will gladly assist along educational lines.

He will not, however, carry tools with him, for it never was intended that our service men should do actual work on the territory. It is up to you to perform the actual work and we, through our Service Manager and his assistants, the service travelers, will aid you to the best of our ability by supplying such information as you may require and which we are able to give.

The automobile business is just getting a good start and during the next few years its volume will be greatly increased, and if you expect your business to keep pace with the general increase it will be necessary for you to put your house in order by having enough and the proper kind of help to make satisfied owners of all buyers of

This will not only mean increased volume for you, but also greater profits. Although this new department will mean a considerably increased expense to us, still it will prove of great benefit to you and if you will handle your business in an up-to-date and businesslike way you will be the one to participate in the increased profits which will come from the increased volume of business which someone is going to get during the next few years of unprecedented prosperity in the automobile industry.

Yours truly,
Buick cars.

BUICK MOTOR COMPANY.

Putting the Dealer's Service on Its Own Feet

How One Distributer Has Instituted a Plan Whereby the Dealer Is Helped and Taught to Give Good and Profitable Service

By Ben S. Brown

THE Buick Motor Co.'s Kansas City branch, J. F. Martin manager, is putting into effect a new plan of service to dealers, which is resulting in widespread benefit to owners.

The system hooks up with the Buick company's practice of encouraging dealers to carry larger stocks of parts, by assisting dealers to improve their service departments.

The results of the new department's work were seen immediately. There was a sharp falling off in the calls for service men, indicating that the dealers were equipping their establishments with service departments, and were handling their customers promptly and efficiently.

Questions a Guide

It was also evident that the dealers and their mechanics were competent to handle troubles, for the questions asked were intelligent, and the answers almost invariably enabled them to make necessary repairs or replacements without the assistance of service men.

In many instances, the service bulletins anticipated the calls for assistance, giving all the dealers the information and help which many would have requested individually. Troubles followed a comparatively sudden increase in the amount of poor gasoline being sold; a bulletin on this subject gave the dealers a lead on meeting complaints of customers, and suggestions by which the trouble resulting from poor gasoline could be overcome.

The primary features of the plan consist in showing dealers that their best interests lie in giving prompt and efficient service to customers. This cannot be done, it is urged, unless the dealer has a well-equipped shop and competent mechanics to look after the cars. The dealers are there-

They Say

DISTRIBUTERS say that some dealers around the country are not up to a very high standard. Quite true; a lot of them are not. The field for development work by distributers is large and has been open for some time and this story tells how one wholesaler has tackled the problem in a real way.

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TO OUR DEALERS:—

Recently we read an advertisement of one of our dealers and it offers one of the best reasons we know of why one should buy a Buick car. Copy of the advertisement follows:

40 CENT GASOLINE.

"Would you buy a car if you knew that you were going to be compelled to pay forty cents per gallon for gasoline?

"Would you sell your car if you knew that your were paying that price for the gasoline to run it?

"Thousands of motor car owners are paying the equivalent of even fifty cents and more per gallon.

THE BUICK OWNERS PAY THE ACTUAL MARKET PRICE.

"Records all over the country prove that the Buick D-6-45 is running on an average of from eighteen to twenty miles per gallon. Figure out the cost of driving twenty miles per gallon for one thousand miles with gasoline at twenty-three cents per gallon.

"Then figure the cost of driving the same distance with the car that only goes twelve miles per gallon and see if you are not paying the equivalent of over thirty-eight cents per gallon. Then consider the car that only goes nine miles per gallon and see if you are not paying over fifty cents per gallon.

ECONOMY MEANS EFFICIENCY.

"A motor to be so economical must be built right. The motor that gives so high a degree of efficiency will also save in lubricating oil and the cost of upkeep in general to such an extent that your saving in actual dollars and cents at the end of the year will be stupendous; saying nothing about the added pleasure of driving a motor car that is built to give the highest degree of service."

Yours truly,

BUICK MOTOR COMPANY.

Bulletin No. 69.
Issued by J. F. M.,
Feb. 27th, 1917.

fore being aided toward the shop and the workmanship by the Buick branch, which has instituted a new sort of service.

Previously, the service department had been called upon to send men to do mechanical work on cars, or the dealers had sent in the parts to be repaired at the shop of the branch. It was seen that this practice was demoralizing the dealers themselves, for it was preventing their own development of service departments. It was easier to call for a service man than to fix the trouble themselves.

The new service department of the branch is in charge of Fred Wyman, who is Service Manager. The traveling service men will not carry any tools, and will not be expected to do any actual work on cars.

Business Builders Also

Their function will be to show the mechanics in the dealers' service stations how to handle the emergency, and to give advice on shop management. They will also assist in the development of the dealers' business methods under the changing conditions of the growing automobile industry.

The service department at Kansas City is organized to handle large correspondence from dealers, who already are seeing the advantage of the new system, and sending in their questions, instead of merely asking for a service man. A form has been provided for these questions, which provides for specifying the model of the car, the motor number, the frame number, the mileage the car has run when it was sold, and the name of the owner.

An incidental helpful feature of the service plan is the invitation to dealers to come themselves, or send their mechanics, to the Buick branch at Kansas City to get first-hand information and experience in the shop work on Buicks. Many dealers have responded to this invitation, some spending as much as two weeks in the Kansas City service station learning the methods.

The service department does not, however, confine its helpfulness to the answering of questions. It sends frequent bulletins to dealers, covering points that have been raised as to handling specific troubles, and suggestions for selling, or for instructing customers in the care of cars.

The new system under which each Buick dealer is expected to carry an adequate stock of parts is working out also to the benefit of dealers and customers. The one possible objection—that a dealer might get on hand a larger stock of some parts than he could move—is being met now satisfactorily. The travelers for the branch keep track of the excess parts in all the dealers' stocks, and when a dealer happens to need any of these they are ordered from the dealers who have them to spare. This system also serves to equalize the distribution of the parts from the standpoint of economy, in view of the shortage in materials.

The Letters

THE letters on this page are bulletins to dealers by the Buick branch in Kansas City. Each one teaches a business point. Each one is welcomed by and valuable to the dealer.

TO OUR DEALERS:—

Occasionally we are advised by owners of Model "D-4-35" cars that the motors seem to lose power when thoroughly hot. On investigation we find that this is due to an excess of exhaust heat being applied to the carbureter hot air jacket.

The trouble can easily be overcome by simply opening the small, diamond shaped shutter at the bottom of the carbureter.

In following the suggestion noted in the foregoing you should adjust the heat damper which is connected to the throttle lever so as to shut off the heat to the carbureter when the throttle is open.

You can avoid complaints from your customers by passing on the above information to them.

Yours truly,

BUICK MOTOR COMPANY.

Bulletin No. 82.
Issued by J. F. M.,
April 3rd, 1917.

Good Shock Absorber Demand

NEW YORK, Dec. 10—Edward V. Hartford, Inc., reports an unusual volume of dealer-orders for shock absorber equipment. In Chicago territory sales have exceeded all previous records.

NO BULLETIN EVER ISSUED BY US CONTAINS MORE IMPORTANT INFORMATION THAN THIS ONE.

TO OUR DEALERS:—

It has been very noticeable that some of our dealers have not been instructing their customers as to the care of their motors, thus allowing things to take their course and asking the Buick Motor Company to make good on such parts as in their opinion did not last as long as they should. This trouble has been traced to the poor grade of gasoline.

It is impossible to get a good grade of gasoline everywhere and so we have to depend on the heat of the motor to vaporize the gasoline to make it burn and not the carbureter. The carbureter has long since ceased to be a machine to vaporize gas and acts only as a measuring machine or meter. It is impossible to always have a hot motor, and that being the case, the gasoline does not vaporize as it should and the result is that about 40% or 45% of the gasoline enters the cylinders in a liquid form and works its way past the pistons and piston rings into the crank case, thus mixing with the oil and forming kerosene.

Kerosene being a high grade cutting oil and used in cutting cast iron and aluminum, it stands to reason that it would cut valve lifters and guides, cylinders, pistons, piston rings, bearings and all working parts in the motor. The only thing left to do is to change oil every five hundred miles, which is a very important factor to prolong the life of the motor, and its importance should be strongly impressed upon your customers.

Yours truly,

BUICK MOTOR COMPANY.

Bulletin No. 83.
Issued by F. E. W.,
April 3d, 1917.

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Schebler Plain Tube Carbureter

Novel Principle Used to Insure Proportioning of Air and Fuel Throughout Working Range

THE Wheeler-Schebler Carbureter Co., Indianapolis, has brought out a new plain tube type of carbureter. The first model made is for Ford cars, and others of the same design will follow after tests on various sizes of horizontal and vertical types have been completed.

The new Model A incorporates a downstream Pitot tube which acts as the impelling means to drive fuel out of a reserve well so that it will automatically furnish a rich mixture for acceleration and a leaner mixture after the normal motor speed has been reached. The venturi of the Ford type is horizontal, with the main jet opening at the restricted part. The idle passes transversely across it in a vertical direction, and discharges above the throttle regulated in the customary way by a needle valve with a knurled screw *A* which regulates the idling and low speed mixture.

The theory of operation is that gasoline and air obey the same laws of flow; therefore, if they are started at a common zero the flow of fuel out of a nozzle inserted in and caused by a flow of air through a pipe or venturi will remain directly proportional. However, fuel in the liquid state does not flow until considerable head is produced, due to surface tension or capillarity. In order to break this tension or holding of the fuel in the jet, the high vacuum above the throttle is utilized.

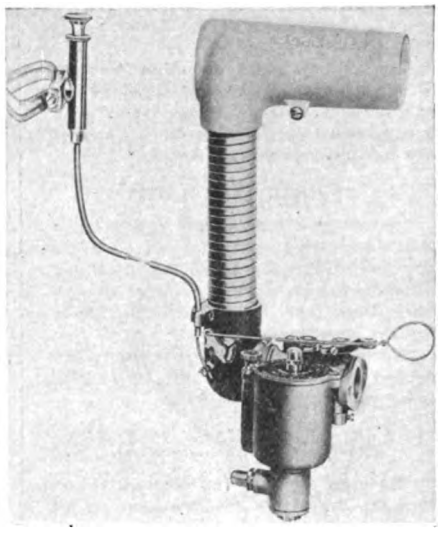
Air flows into and through the choke or venturi tube in the direction of the arrow, but for idling speeds the velocity is too low to cause suction enough to break the surface tension at the main nozzle *A*. An extension is provided from the main nozzle to the engine side of the throttle, the size of this passage being controlled at the point *B*.

In operation, the high suction above the throttle breaks the surface tension in the main nozzle and causes fuel to flow through the extension, together with some air, which is drawn in through the main nozzle holes *A*.

By means of the adjustment *B* the flow rate can be made to equal that which would be taken out of *A*, if surface tension were eliminated. As the throttle is opened the increasing suction at the main nozzle cuts down the air bleed through the holes *A* and causes more fuel to pass through the extension, until the suction caused by the flow of air at main nozzle *A* equals the decreasing static suction above the throttle.

Fuel then comes out of the main nozzle holes *A* into the main air stream. This also probably causes a slight reversal of flow in the extension passage. This combination produces a correct proportion of air and fuel through a very large range if the throttle is not suddenly thrown wide open from its closed position. When this happens the motor would lay down or miss six or seven shots and sometimes die.

To overcome this trouble an overflow well or reserve chamber *C* is formed around the main fuel passage, whose top is integral with the main nozzle head and provided with a downstream Pitot. From this head two acceleration tubes extend to different depths into the overflow well and discharge into the main air stream.



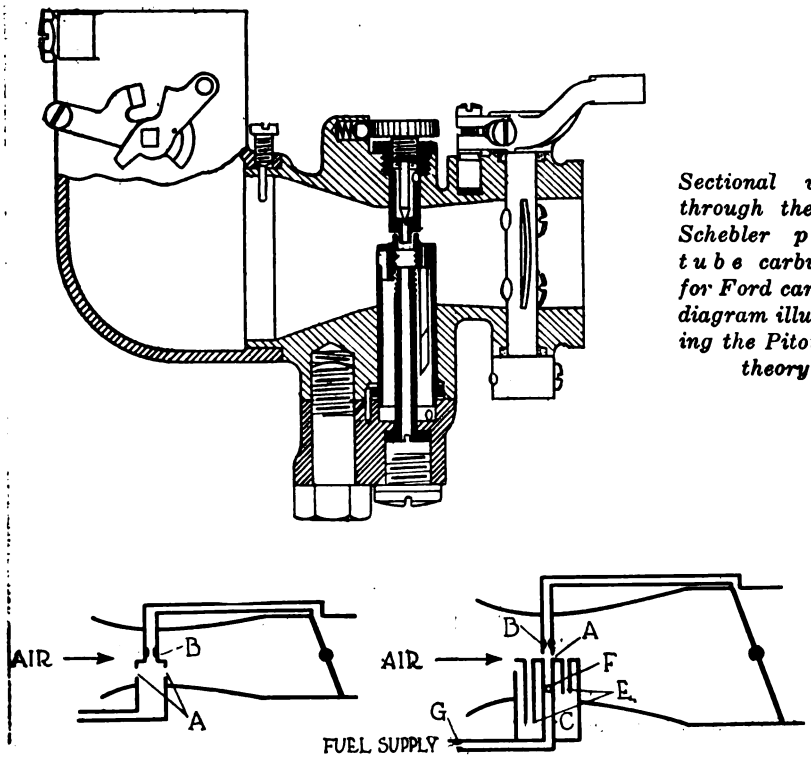
Appearance of Schebler carbureter applied to Ford

With the motor idling or running slowly the well *C* will fill up by means of the hole *F* in the main nozzle passage. Upon suddenly throwing the throttle wide open the reserve supply of fuel is taken out from the acceleration tubes *E* as well as from the main jet *A*. This practically makes a temporarily large jet or nozzle until one of the tubes *E* is uncovered by the lowering of the fuel level in the well. Air is then drawn out through this tube and acts in opposition to the supply of air from the Pitot.

This opposition causes a gradually increasing suction in the well *C* and uniformly decreases the discharge of fuel therefrom out of the longer tube *E*. This operation fills in the time element necessary for the main jet to resume its normal function of delivering a thin mixture. The tubes *E* are also made of varying lengths to hold a reserve supply of fuel in the well from some intermediate speed of, say, 15 m.p.h.

The Pitot function is simply to provide air at sufficient pressure to force the fuel from the well. It so happens that in a stream of air the pressure head due to velocity is negative and exactly equal to the positive impact head due to the same velocity; therefore, the Pitot hole, facing downstream, delivers air to the well at or near atmospheric pressure.

All the fuel passes through the main adjustment *G*, which is located at the float bowl and therefore controls the whole range of the carbureter, while still allowing the idle or low-speed adjustment to be changed with the condition of the motor or variations in motors of the same design. The complete outfit sells for $17.



Sectional view through the new Schebler plain tube carbureter for Ford cars and diagram illustrating the Pitot-tube theory

Guaranty Securities Moves

NEW YORK, Dec. 7—The Guaranty Securities Corp. has moved its offices to 244 Madison Avenue. The corporation was formerly in the Equitable Building. It will occupy the first and second floors and basement.

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The Week in Washington

Government Recognizes Futility of Drastic Curtailment of Industry—Council of National Defense Reorganized

WASHINGTON, Dec. 11 — Vital changes, marking emphatically closer coordination with concentrated and more wisely directed purchasing and executive power will be made in the Council of National Defense early this week.

This will be the first substantial proof of the fact that our Government is recognizing the futility of drastic curtailment and classification of industries as nonessential and has chosen a middle path combining a safe and sane course that forecasts a positive rather than a negative action—a building up instead of a tearing down.

The changes in the Council began last week, when as was announced in Motor World the various sub-committees resigned to avoid the embarrassing situation wherein the members of those committees were frequently called upon to act both as Government agents and representatives of the industry at the same time.

In the place of these industrial committees, individual authorities in the industries have been selected and the changes that are to be made this week revolve about these individuals who are to be given full power for representing both the Government and their respective industries, not only on matters pertaining to purchases but also on all production and priorities as regards each respective industry.

Horning Represents Industry

For example, H. L. Horning, who has been chairman of the automotive committee, will in the future not only be the supervisor of purchases on all matters automotive, but also will have full representation for the automotive industry on all priority matters, production and on all matters of every source that arise in the Council of National Defense and in any way affect the automotive industries. In the future Mr. Horning will have complete supervision of the automobile, truck, military tractor, motorcycle, motors and accessories, airplane parts, motor boat and gas engines and through him these industries will be represented on the War Industries Board.

Further details of the proposed changes in the Council are not yet available, but it is known that the new plan contemplates complete harmony with the President's request in his message before Congress this week when he asked for a concentration of purchasing to avoid waste and inefficiency that would otherwise be beyond his control.

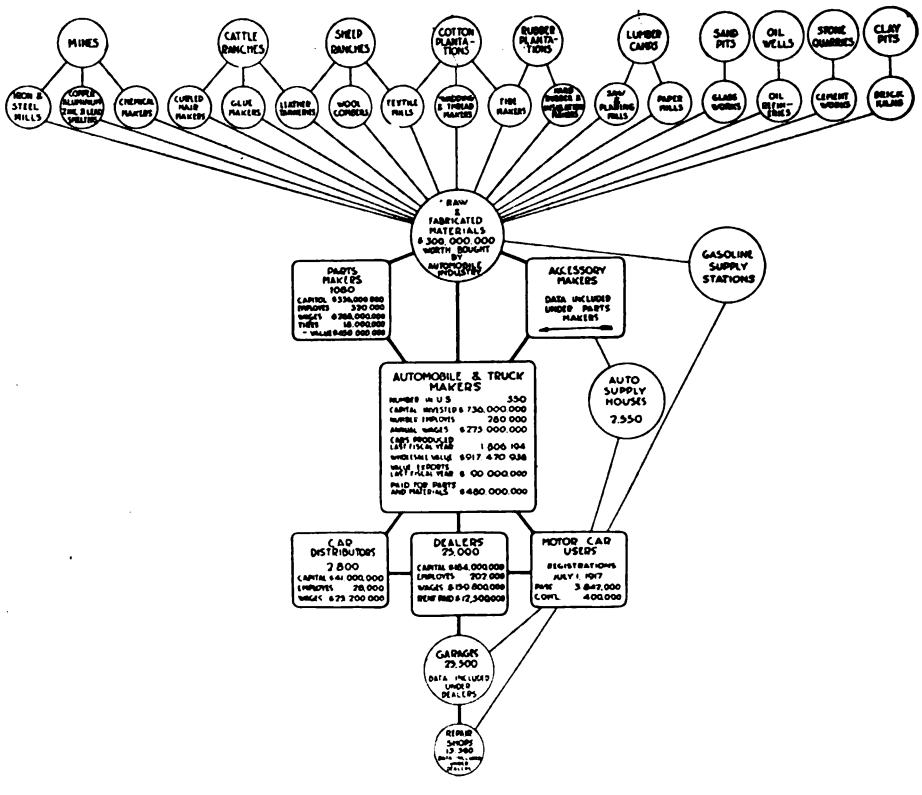
He has delegated Presidential power to the War Industries Board and it is anticipated that there will be radical departures from the present methods of purchasing. It is reported that Coker F. Clarkson, general manager of the Society of Automotive Engineers, will collaborate with Horning and will be given an official title.

The War Board for Conservation of Industries, which was formed last week and is headed by George M. Peek, will operate along a fixed policy which demands that there shall be no curtailment of what may be considered less essential war industries, as such. When there is not enough coal, raw material, or freight cars to go around, the subject will be handled by giving preference for the time being to those industries most essential for the conduct of the war. In addition to this the new board will aid any company less essential and seeking such aid in converting its plant to the manufacture of war materials so that it will become a preferred plant and secure preferred treatment.

Contracts for assemblying the Class B trucks have been let, as announced elsewhere in these columns, and the Military Truck Production Board will now turn its attention to the assembly of the Class A truck, contracts for which will not be let for some time, but which will require considerable detail work in the meantime.

The scheduled date for the assembly of the sample Class A truck arrived to-day but none of the Class A trucks has been fully completed and the complete assembly is being held up awaiting the arrival

How the Motor Car Industry is Organized



This chart, which shows how closely the motor car industry is related to many other primary industries, has been prepared by the National Automobile Chamber of Commerce. Even the conservative figures given make plain the tremendous importance of this industry to the other industries

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of minor parts, which are expected in a few days.

Liberty aviation engine production is succeeding to the highest point of expectation, despite many rumors to the contrary.

The first machine-made Liberty aviation engine was sent out on Thanksgiving Day, and from present production, figures for which obviously are not available, the officials of the Aircraft Production Board are certain that all their plans will succeed as were forecast early in the war. The official announcement of this should effectually end all of the rumors to the contrary and set at rest a lot of groundless fears.

The test drives of the Class B sample trucks continue with more than 3000 miles to their credit and with no display of any important defect.

Factories to Lose Many Austrians

DETROIT, Dec. 7—Declaration of war on Austria-Hungary with the attendant removal of all alien enemies from the factories may remove from 5000 to 7000 workmen.

For some time past no foreigners have been employed unless they had already taken out their first citizenship papers. This will not affect production to any great extent, as it represents only a small proportion of the whole. The Ford factory alone employs from 30,000 to 40,000 men.

Firestone Changes Wheel Selling Plan

AKRON, Dec. 7—The Firestone Tire & Rubber Co. has slightly altered its selling plan on demountable rims and wheels for Ford cars. Hereafter orders for such equipment are to be filled direct by jobbers. Heretofore such orders have been filled exclusively by Firestone branches.

Truck Mail Route Established

WASHINGTON, Dec. 10—The Postoffice Department to-day put into operation the first motor mail route between big cities when it established a service between Washington and Baltimore. The motor trucks leave Washington and Baltimore, respectively, at 6 o'clock in the morning, meet about three hours later at a point midway between the two cities, exchange their mail, and return to the starting points by 2 o'clock in the afternoon. Other routes between large cities are to be established as soon as it is possible to arrange for them.

Motor Cooling Patent Upheld

CHICAGO, Dec. 11—The exhaust operated circulating system patent of the Motor Cooling Systems Co., Baltimore, has been declared valid and infringed in an action brought by that company against the Smith Form-A-Tractor Co. The patent is No. 1,138,962. The case was heard by Judge George A. Carpenter in the United States District Court for the Northern District of Illinois, Eastern Division.

Contracts for 9,500 Class B Trucks Let

Government Awards Work to 16 Makers—Most Contracts for 500 Trucks Each

WASHINGTON, Dec. 10—Contracts for 500 Class B trucks each have been awarded to the following companies:

Kelly-Springfield Motor Truck Co.	Springfield, Ohio
Indiana Truck Corp.	Marion, Ind.
Service Motor Truck Co.	Wabash, Ind.
Republic Motor Truck Co.	Alma, Mich.
Bethlehem Motors Corp.	Allentown, Pa.
Kissel Motor Car Co.	Hartford, Wis.
Diamond-T Motor Car Co.	Chicago
United States Motor Truck Corp.	Cincinnati
Brockway Motor Truck Co.	Cortland, N. Y.
Sterling Motor Truck Co.	Milwaukee
Garford Motor Truck Co.	Lima, Ohio

Contracts for 1000 each have been given to the Gramm-Bernstein Motor Truck Co., Lima, Ohio, the Pierce-Arrow Motor Car Co., Buffalo, and the Selden Truck Sales Co., Rochester, N. Y. A contract for 500 or 1000, the number not being definitely decided yet, will be awarded to the General Motors Truck Co., Pontiac, Mich. There will be one more name added to the list to-day for a 500 contract. So far contracts for 9500 assemblies have been awarded.

Kerosene Advanced 1 Cent

NEW YORK, Dec. 11—The Standard Oil Co. of New York has increased the price of kerosene one cent a gal., bringing present prices to 14 cents in barrels and 10 cents tank wagon basis. The advance is taken to indicate that the question of Government fixing of oil prices is not one of immediate consideration. The advance follows an increase in price of crude oil to $3.75 a barrel, the highest price in more than 40 years.

G. M. to Open Marquette Plant

SAGINAW, MICH., Dec. 7—The General Motors Co. will open the Marquette plant in this city and will start operations about Jan. 1, employing between 1000 and 1200 men. George H. Hannum, general manager of the Jackson-Church-Wilcox Co., will be in charge. This plant was originally constructed for the Ranier Motor Co., was taken over by the General Motors Co., and the Marquette-Buick manufactured in it for some time. General Motors has secured large Government contracts, and the opening of this plant is doubtless part of the manufacturing scheme.

Straighten Out Oil Labor Troubles

WASHINGTON, D. C., Dec. 10—Labor troubles in the California oil fields have been straightened out by the Government by the President's mediation commission. About 10,000 men are affected. Four dollars is to be paid for an eight-hour day and overtime is to be construed as at the request of the Government and not for the operators. It is agreed that there is to be no discrimination or intimidation because of union or non-union affiliations. Similar adjustments are anticipated in other fields where necessary.

Receiver for Marion-Handley

DETROIT, Dec. 7—The Mutual Motors Co. of Jackson, Mich., manufacturer of the Marion-Handley, is now in the hands of receivers. The Detroit Trust Co. has been appointed receiver in bankruptcy. Some months ago this company was formed by the consolidation of the Marion Co. of Indianapolis and the Imperial Co. of Jackson. About a month ago the plant was shut down for an inventory, which is at present being completed.

Cars Coming from Texas

CLEBURNE, TEXAS, Dec. 7—The Texas Motor Car Association, which is being organized for the purpose of constructing a plant at some point in Texas to manufacture automobiles, will have a capital stock of $1,000,000. George W. Cashin, manager of the Fort Worth office of the company, has been investigating the situation at Cleburne with a view of locating the proposed plant here.

Moto-Meter to Be Jobbed

NEW YORK, Dec. 7—The Boyce Moto-Meter, which heretofore has been handled by a few big distributing houses, is to be marketed hereafter through jobber-dealer channels. The new policy takes effect Jan. 1.

Julius Andrae Passes Away

MILWAUKEE, Dec. 8—Julius Andrae, president of Julius Andrae & Sons Co., an old established jobbing house in hardware and accessories, died Sunday, Dec. 2. He was 88 years old.

Sue Enricht Over His Fuel

NEW YORK, Dec. 3—The gasoline substitute of Louis Enricht, which achieved considerable publicity several months ago, is again in the limelight. Enricht is being sued by the National Motor Power Co., which wishes to restrain him from disposing of the secret formula. It is charged that he offered to sell it to Germany for $1,500,000. Enricht denies any unpatriotic action or intent.

Saxon Six Delivery Car

DETROIT, Dec. 8—The Saxon Motor Car Corp. is delivering to dealers a 500-lb. light delivery car built on its six-cylinder chassis. Either panel body or open body with curtains is supplied. The chassis has been made slightly heavier and strengthened where necessary to make it suitable for the additional load. The price is $850.

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Steel Makers Assure Steel for Munitions

Willard in Government Conference Says Interruption or Delay Is Unlikely

WASHINGTON, Dec. 10 — Government officials conferred with the steel makers of the country here yesterday and the Government was assured of all the steel necessary for munitions and other manufactures. The 2-hour conference discussed mainly the questions of labor, transportation and raw materials. Daniel Willard, chairman of the War Industries Board, said that the labor situation appears to be in pretty good shape and that he was confident that there would be no interruptions or delays in the steel industry. These men attended: E. H. Gary, James A. Farrell, Charles M. Schwab, Eugene C. Drake, John A. Topping, E. A. S. Clarke and A. C. Dinkey.

Push Arizona Road Work

PHOENIX, Dec. 10—Road work in Arizona is not to be suspended or curtailed during the period of the war, but will be pushed as rapidly as possible in order to bring the state highway system to the highest degree of utilization by the traveling public. Arizona will spend approximately $1,250,000 on highway construction between now and next July.

Watch for These Men

DETROIT, Dec. 3—The Board of Commerce has issued a warning to all manufacturers, on the authority of the Government, stating that certain men representing themselves to be manufacturer's agents are offering war contracts throughout the country on a commission basis. These men claim that they are able to secure contracts through political pull, and in many cases state that they can sell goods already manufactured to the Government. It is also stated that agents of this kind are already at work in this city. Most of the Government's awards are placed on a competitive basis, hence so-called agents cannot help in any way.

Big Dort Wholesaler Formed

TOLEDO, OHIO, Dec. 3—The Ohio Wholesale Auto Co. is incorporated to take over the business of the F. R. Mitchell Co. by Lee Beeler. The new company will be state distributer for the Dort and the transaction is said to represent a business of more than $1,500,000 in Dort cars for the coming year. No cars will be sold at retail, though arrangements will be made for retailing Dort cars in Toledo. Agencies have been established in Cleveland, Cincinnati, Dayton and Columbus, and others will be established as soon as possible. The officers of the company are George W. Barnes, Muskogee, Okla., president; Lee Beeler, vice-president and general manager; and O. W. Smith, secretary.

Georgia Has 68,000 Cars

SAVANNAH, Dec. 3—Over 68,000 automobile tags were issued from the office of Secretary of State Phil Cook during 1917 and it is predicted that the number will be greatly increased in 1918. The Secretary says that he must have more help in his office to keep up with the great increase in work.

7000 Cars Stolen in Michigan

LANSING, MICH., Dec. 4—In spite of the fact that the last legislature made motor car stealing a felony with a maximum of sentence of a $1,000 fine or five years imprisonment or both, the number of cars stolen in the past year has increased. It is estimated that 7000 cars have been stolen in Michigan.

Market Report Issued Covering Used Trucks

Chicago Automobile Trade Association Publishes First Report—Two a Year

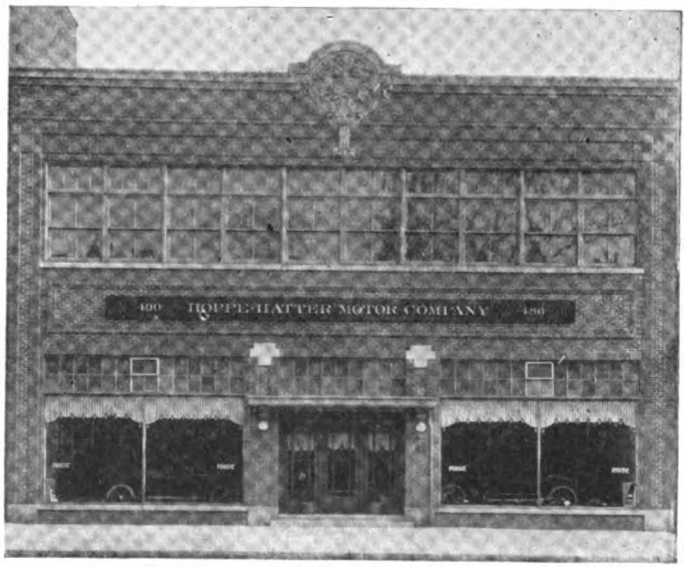
CHICAGO, Dec. 7—The Chicago Automobile Dealers' Association, which for some time has been publishing a National Used Car Market Report giving "As is appraised" values of used passenger cars and average resale prices received by dealers for such cars, has issued its first National Used Truck Market Report. In scope the report is quite similar to the used car report and is intended to be used by dealers for reference in making allowances on used trucks and in selling them.

Books in pocket form, 7 x 4¼ in., bound in semi-stiff green leather, are issued twice a year and loaned on a yearly subscription basis to firms manufacturing or selling motor trucks. The first volume gives the current estimated selling value of all models from 1912 to 1916 of 108 different makes of trucks. Current-year models are listed but not appraised. The yearly subscription is $10. The Chicago Automobile Trade Association has offices at Michigan Avenue and 22d Street, Chicago.

After Tire Thieves

DETROIT, Dec. 4—In view of the constantly increasing number of tire thefts the Detroit Automobile Club is sending a blank to all of its members for the purpose of obtaining data on their tires to aid recovery in case of theft. This blank lists the make of the car, factory number, license number, and the number and make of each of the tires, together with the name and address of the owner.





When the Hoppe-Hatter Motor Co., Milwaukee, wished to draw the public to an enclosed car salon it decorated the interior of its salesrooms with appropriate furniture and foliage and planned plenty of newspaper advertising. A feature of the display was a daily show of fashion models in which live mannikins from a Milwaukee department store demonstrated gowns for visitors

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Heavier Inventories Reducing Dividends

Need for Carrying Big Stocks of Materials Results in Less Cash on Hand

DETROIT, Dec. 7—There has been considerable uneasiness over the action of several motor companies in holding up or decreasing certain dividends, but a little consideration of the conditions will indicate this to be an entirely natural action. At the present time every manufacturer requires a greater amount of cash on which to carry on his business—first because more is needed, and secondly, because money cannot be obtained as easily from the banks. Besides capital is needed to finance war work.

There has been considerable uneasiness about the ability of the car manufacturer to get material for the coming year's production—and the one that was the uneasiest was the manufacturer himself. Hence ironclad contracts were made with the sources of supply, and now the materials are coming in in great quantities. Almost every company is carrying an inventory investment far above that of last year—which in turn has eaten into the surplus, and rendered the retention of dividends wise.

The recent report of the Reo Motor Co. is an example of the increase in inventory and decrease in surplus; Dodge Brothers are reported to have material for over a year's constant production at maximum capacity, and Chalmers to have $6,000,000 worth of material on hand. Others are likewise carrying large inventories. In view of these conditions, conservatism is advisable, and is not necessarily an indication of weakness.

The Willys Overland Co. reports twice as many sales for November as in November, 1916. The Cadillac Motor Car Co. states that out of a representative list of owners having previously owned Cadillacs, 37 per cent changed this season from open to enclosed cars. Buick, Olds, Reo, Oakland, Liberty, and, in fact, practically all manufacturers report good business.

Pushing Truck Sales

CLEVELAND, Dec. 8—Twelve local truck dealers have combined in a co-operative advertising scheme for emphasizing the value of the truck in relieving the freight car shortage, and in cutting down the cost of doing business. An advertising campaign is carried in the local papers, comprising full page spreads, and headed, "Buy your motor truck now," followed by eleven reasons why now is the best time to purchase a truck, and signed by the twelve dealers. No mention is made of any particular truck in the way of a sales argument for that truck, the name of the truck being simply listed after the name and address of the dealer. The following are the trucks listed: Maxwell, Nash, Packard, Peerless, Reo, Kissel, Studebaker, Smith Form-A-Truck, G M C, Pierce-Arrow and White.

To Handle Deferred Payments

DES MOINES, Dec. 8—Organization of a million dollar concern to handle deferred automobile paper is now being projected in Des Moines. It is understood that an official of a public utility company will become active manager. A number of prominent local capitalists are also understood to be interested in the concern.

G. V. Electric Trucks to Be Continued

LONG ISLAND CITY, Dec. 8—The General Vehicle Co. will continue the manufacture of electric trucks, notwithstanding the fact that a considerable portion of the Long Island City plant will be devoted to government work.

Ask Dealers to Help Solve War Problems

Many Cities Asked to Send Men to Confer with Automobile Industries Committee

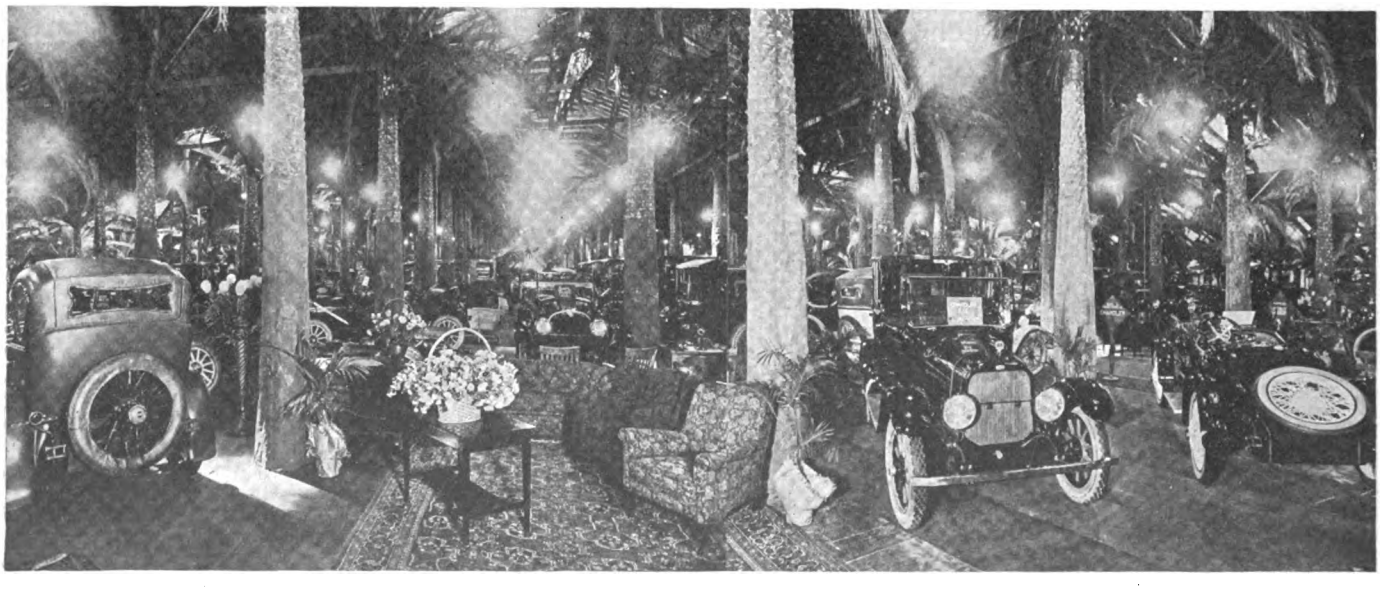
NEW YORK, Dec. 10—Leading automobile dealers have been asked to go to Washington Dec. 14 to meet with the Economy Board of the Council of National Defense. Boston, Chicago and other city-dealer associations will send representatives. President George W. Browne, Milwaukee, will represent the National Automobile Dealers.

The Boston Automobile Dealers' Association at a special meeting of the board of directors to-day appointed President John H. MacAlman and John H. Johnson a committee to go to Washington to confer next Friday with A. W. Copland, chairman of the Automobile Industries Committee. That the conference will have to do with giving dealers some recognition at Washington seems certain, for conferences have been held with Senator Weeks, who promised that car dealers will be given a chance to present their claims.

Also to be considered, it is believed, will be the question of how best to secure skilled workers from the factories and service stations without disturbing the working forces. Johnson has outlined such a plan to Senator Weeks, and the latter turned it over to one of the defense sub-committees. MacAlman is vice-president and Mr. Johnson is a director of the National Automobile Dealers' Association.

Calumet Dealers Organize

CHILTON, WIS., Dec. 7—The dealers of Calumet County have organized the Calumet County Automobile Dealers' Association, with a membership of 25.



THE LOS ANGELES MOTOR CAR SHOW held recently was one of the most elaborately decorated exhibitions that the industry has seen in some time. It isn't necessary to say much about it. The picture tells the story. Scan the details carefully and note the wonderful effect

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23,048 More Workers Needed For Munitions

Survey of 37 Cities Reveals Big Shortage—Most Needed for Airplane Plants

WASHINGTON, Dec. 8—The employment agency of the Department of Labor after covering thirty-seven cities found that war order firms employing 168,446 persons still need 23,048 additional workers, approximately 57 per cent of the demand being for airplane and seaplane factories. Additional workers were also needed by ordnance, ammunition, iron and steel castings, machinery, truck and motor vehicle manufacturers.

Baldwin Heads Tacoma Speedway

TACOMA, Dec. 7—Walter C. Baldwin has been elected president of the Tacoma Speedway Association, and has begun with his fellow officers to formulate plans for next season's race meet. The speedway headquarters have been moved to 2140 Pacific Avenue. Other officers elected were: C. J. Carr, vice-president; George D. Dunn, secretary; H. E. O'Neal, treasurer; F. Garrett Fisher, W. E. Reynolds, D. D. A. Outcalt, C. L. Ross, E. B. King, A. R. McMillan, Dr. C. P. Cammon and I. N. Hague are the directors.

Are Driving Roamers Only

Editor Motor World: Some of the trade papers recently have been giving the impression that Eddie Hearne and Pete Henderson are driving Duesenberg cars. This is entirely untrue. Both these drivers are driving ROAMER cars and only ROAMERS. Will you kindly co-operate with us and do what you can to correct in the future the misapprehension under which so many of the automobile men are evidently laboring?—J. E. Kelly, Wm. D. McJunkin Advertising Agency, Chicago.

Watch Out for This Impostor

Editor Motor World: About a year ago the trade papers published a letter that we wrote in reference to a party calling himself R. A. Spencer, purporting to be a representative of this company. At that time he was active in Ohio, part of West Virginia and Pennsylvania. He obtained some of our specialties either through the jobbers or other channels, and sold our product at about 100 per cent higher than list price.

After the trade papers published our letter, this party was inactive until very recently. We have to date received three letters from different dealers in the New England States advising us that this party was up to his old tricks.

We regret very much that we have never been able to obtain an accurate description of this R. A. Spencer. Inasmuch as our last letter to the trade papers obtained such good results, we should appreciate if you would mention something in your reading columns, warning the trade against this impostor.

Our product is sold through the jobbers and we have no traveling representative by this name; neither do any of our traveling representatives sell and deliver goods. All shipments are made direct from our factory or through our New York distributer.

It is possible that he is selling specialties manufactured by other companies, so it might be well just to make a short insert advising the dealers, garages and service stations about this party.—Jefferson Electric Mfg. Co., John C. Garrett, Advertising Manager, Chicago.

Planning a New Building

(*Continued from page* 35)

The overhead traveling wash rack, Fig. 2, makes it possible to wash each car in the aisle directly in front of its space. The car is simply pushed straight out into the aisle, the washer is rolled over, curtains are hung up front and rear to prevent splashing adjoining cars and the aisle sides are left open for light and air. The hose is hung from two corners of the wash rack and there is a strong light at each corner so that the car is completely illuminated.

The method of connecting the hose is unusual. Ordinary automatic air break hose connectors are used, these fastening together with a single movement. It is an idea which is worthy of universal adoption.

A wash of this type is good because it is easier and quicker to bring it to the car than bring the car to it. There is no time wasted in pushing cars to and fro. There is nothing expensive about the construction of the apparatus. The rails are inverted, U-shaped steel with a slot at the bottom similar to that used for some types of sliding doors. They are suspended from wooden beams which are attached to the concrete ceiling at intervals. The wash rack itself is merely a wooden frame to carry the hose, light and curtains.

The fact that the car is moved such a short distance, coupled with the fact that it is not turned but pushed straight out, practically eliminates the possibility of damage to the car while it is being washed and if accidental damage occurs from moving cars without the control of the company, the owner realizing this fact will be less likely to blame the garage for the mishap.

It should hardly be necessary to add that the aisle is divided off into squares, each square being drained through a center hole. That is to say, the square is about as long as the width of the aisle and all its area is drained through one hole located in the center.

This washer is designed particularly for night work when most or all of the cars are in their spaces. It is hardly likely that it would prove as satisfactory as a stationary washer if it were used in the daytime when there would be considerable traffic in the aisle.

Engineering Students Exempted From Draft

Estimated That 6000 of Such Students Will Be Given Preferred Classification

WASHINGTON, Dec. 10—Engineering students in schools recognized by the War Department will be exempt from the selective draft. It is estimated that 6000 students are effected. By an order of General Crowder such students are placed in the same class as medical students and will receive preferred classification.

Reo Stockholders to Meet Dec. 18

LANSING, MICH., Dec. 7—The annual meeting of the Reo Motor Car Co. stockholders will be held Tuesday, Dec. 18, at 2 p. m., in the executive building. The report of the officers for the past year will be made and directors elected. It is stated that the truck business for the past year has shown a remarkable gain.

Reorganize Ford Tractor

MINNEAPOLIS, Dec. 5—The Ford Tractor Co. is being reorganized. The proposed plan of reorganization provides for the scaling down of the present outstanding stock of $10,000,000 and creating a new issue of securities of not more than $1,000,000.

Help for Halifax from Boston

BOSTON, Dec. 8—President John H. MacAlman of the Boston Automobile Dealers Association called a special meeting of the Board of Directors this morning to take action upon the catastrophe at Halifax. The directors voted that $500 be given to the relief fund at once, and Secretary Chester I. Campbell was directed to get in touch with the relief committee and notify it that if cars and trucks were wanted to carry supplies to the steamer sailing with such things from Boston the members would be glad to do everything to furnish enough vehicles for the work.

No M. A. M. A. Space at Aero Show

NEW YORK, Dec. 10—While the Motor and Accessories Manufacturers' Association has not withdrawn its sanction for the airplane show it has decided not to allot space to its members. It is stated that it is the Government's desire that a conspicuous display of the airplane industry be not made at this time.

To Continue Pierce-Arrows

BUFFALO, N. Y., Dec. 8—The Pierce-Arrow Motor Car Co. has issued an official statement announcing that passenger car production will not be discontinued. According to this statement the company is now completing increased facilities for a greater output, and the production will not be decreased unless required by the Government. Pierce-Arrow cars will be built in proportion to the amount of material available.

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Jordan Brings Out Sport-Marine; $2375

Has a Bit More Than the Usual Equipment and a Motor of Improved Design

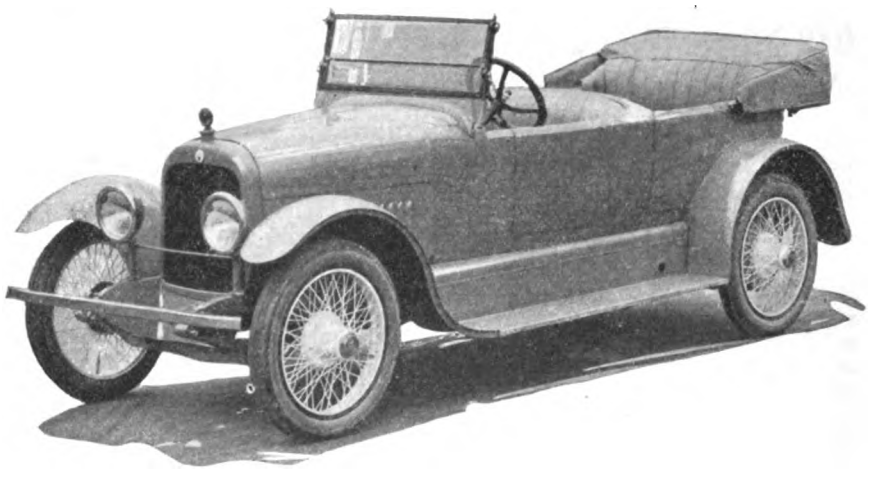
CLEVELAND, Dec. 7—The Jordan Motor Car Co. has placed on the market an entirely new model which is styled "Sport-Marine," and which is to sell for $2,375. It is delivered to dealers with equipment that is far more complete than is usual, standard fittings including five Silvertown cord tires mounted on wire wheels, 75-mile speedometer, Macbeth lenses, Waltham sport clock, tonneau light, Moto-Meter and bumper, in addition to the usual windshield and top; curtains open with the doors.

The body is an entirely new design and is aluminum. It will be finished in optional colors such as Briarcliff green and Ascot maroon. The body is built on the new straight-line idea with keenly beveled edges, square doors and the paneling in Honduras mahogany. The upholstery is a special bright hand-buffed leather and the tonneau is equipped with a velvet rug.

The chassis is similar to previous Jordan models except that it has a new Continental engine with increased bearing surfaces and a modern intake construction designed with a view to utilizing present-day low grade fuel. Pistons are slightly longer than usual, thus eliminating piston slap, and there is a new camshaft and tappet design. The model is equipped with a special gear ratio to provide a reserve of power and compensate for the small wheels and tires.

Many Coast Dealer Changes

LOS ANGELES, DEC. 8—Changes in motor car representation have come fast here in the last two weeks. The biggest switch was when J. W. Leavitt & Co. took over the Oldsmobile from S. F. Seager & Co., which, in turn, acquired the Grant from the Speers Motor Car Co. and the Jordan from the George R. Bentel Co., the latter two concerns not adding to their line yet but continuing to represent the Haynes and Mercer respectively. The Southwest Motors has been formed to handle the Columbia, the Philipps Motor Co., the Daniels, and the California Motor Sales Co. the Olympian. These three are entirely new concerns. The Irving Motor Car Co., Cole distributers, have taken on the Elgin, previously represented by C. Will Risden.



JORDAN'S SPORT-MARINE has a new aluminum body on the straight-line idea with beveled edges. The chassis is similar to that of previous Jordan models

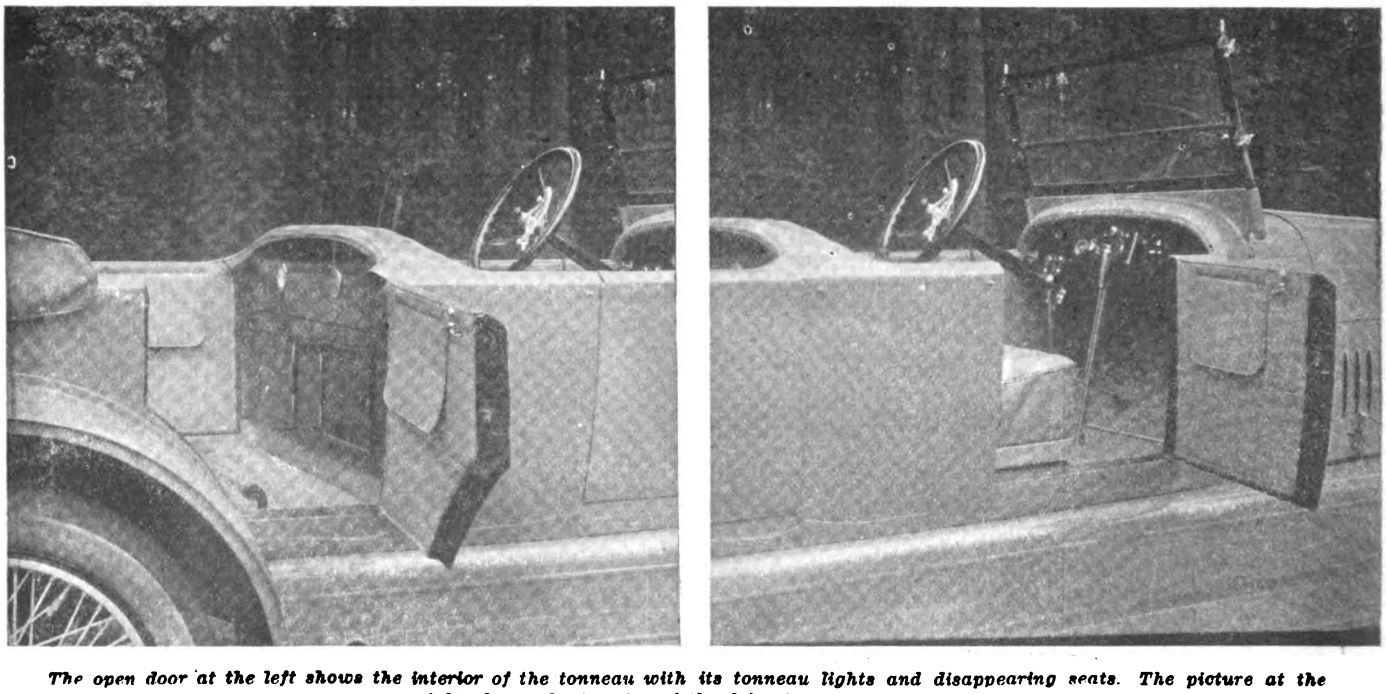
National Automobile Accessory Jobbers' Meeting

In several issues of MOTOR WORLD the date for the New York meeting has been given as Feb. 11-16, which is a typographical error. These dates are Jan. 11 and 16. Committee meetings will be held Jan. 11 and 12 at the Hotel Astor.

No Alcohol Shortage Say Men Who Make It

Milwaukee Drug Co. States That Supply Will Be Greater Than Ever Before

MILWAUKEE, WIS., Dec. 8—Fears that the nation faces an acute shortage of alcohol are scouted by officials of the Milwaukee Drug Co., a large manufacturer and wholesaler of drugs, chemicals, etc. It is stated that prospects are for a larger supply than ever before, due to the fact that distilleries now are making large quantities of denatured alcohol. The Milwaukee house also says that it has experienced no difficulty in filling the demands of all of its customers up to this time and anticipates no trouble in being able to make all deliveries desired for some time to come. Demands for denatured alcohol by motorists are reported to be the heaviest ever known.



The open door at the left shows the interior of the tonneau with its tonneau lights and disappearing seats. The picture at the right shows the interior of the driver's compartment

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37,000 Cars Sold in Massachusetts So Far

Figures for Year to Dec. 1 Show Good Increase—Total Is 174,-274 Motor Vehicles

BOSTON, Dec. 8—The Massachusetts Highway Commission has registered 174,274 motor vehicles up to Dec. 1 of this year. That is 37,465 more machines than were registered for the entire year of 1916.

Of the total, 26,008 were commercial vehicles. Last year there were 18,194 trucks registered. So the gain of those vehicles for this year is 7814. Deducting that number from the total it leaves 29,651 passenger cars registered this year.

The great gains were made in the last few months for passenger cars, for until July 1 there were only 2,262 more machines listed than for all 1916. In the next two months 15,451 cars were listed and very nearly as many during the last three months. In other words, of the cars added to the list over last year's figures 27,389 were registered in the last five months.

This is pretty good evidence that there is some prosperity in Massachusetts as far as the motor trade is concerned. Also that men are willing to put money into the business is shown by the fact that 402 more dealers have been added to the list this year so that now there are 2379 men or firms handling motor vehicles while in 1916 there were 1977.

There are more than 30,000 additional operator and chauffeur renewals this year than last, and nearly 13,000 more additional operators listed, while there are now about 211,000 people in Massachusetts who have the privilege of driving motor cars.

	Total for 1916	To Dec. 1, '17	Increase
Motor cars	118,615	148,266	29,651
Trucks	18,194	26,008	7,814
Total vehicles	136,809	174,274	37,465
Dealers	1,977	2,379	402

Plan National Canadian Dealer Organization

MONTREAL, Dec. 10—The Montreal Automobile Trade Assn. is planning to hold a convention of dealers, garagemen and repairmen during the Eastern Canada Automobile Show, Jan. 19-26. Efforts will be made to organize a Dominion Automobile Trade Association. The convention will be held Jan. 22, 23 and 24.

New York Buys Postal Trucks

NEW YORK, Dec. 8—The New York City Postal District has been added to the list of those in which government trucks are used for mail transportation. The Post Office Department has purchased about 150 motor trucks of three-quarter, one and one-half and three ton capacity, which will be operated January 1. In six of the cities where the Government operated its own trucks last year, there was a saving of $500,000. The plan has already been adopted in Chicago, Buffalo, St. Louis, Philadelphia, Detroit, Boston and Indianapolis, and has been successful in each. Post office officials say the plan will soon be tried in every large city. A post office garage will be ready for occupancy about Dec. 15. There will be 75,000 sq. ft. of floor space and 250 men will be employed.

Winternitz Buys Detroiter

DETROIT, Dec. 10—Samuel L. Winternitz & Co. has purchased from the receiver the entire stock of finished cars, machinery, tools, parts and good will of the defunct Detroiter Motor Car Co. The entire property will be disposed of at auction within 30 days. In the meantime the service department will be reorganized and continued.

War Meeting for M. A. M. A.

NEW YORK, Dec. 10—The Motor & Accessory Manufacturers' Association will hold a war meeting in Detroit December 13 at 10 a. m. at the Hotel Statler. The directors of the N. A. C. C. have been asked to attend. The meeting will be addressed by the Automobile Industries Committee and the meeting will be similar to that held by the N. A. C. C. Nov. 30.

Willis Files Schedules

NEW YORK, Dec. 10—The E. J. Willis Co., automobile jobber doing business at 85 Chamber Street, has filed schedules in bankruptcy showing liabilities of $82,163 and assets of $33,707.

War Department Accepts Motor Reserve

MINNEAPOLIS, Dec. 8—The War Department has accepted the offer of the Minneapolis Automobile Trade Association to provide transportation in the State for representatives of the department on official business. This is the Special Service No. 1 of the Motor Reserve Corps recently established. Similar offer was sent to the Navy Department and to other federal and state departments. Organization is going on in 500 cities of Minnesota of squads of 10 owners each, under auspices of the dealers.

The Minneapolis Tire Dealers' Association has offered to train for the aviation corps 50 men in the art of vulcanizing and repairing automobile tires free. The dealers believe that in their shops with expert aid these men could learn the business in four to six weeks. Offer was made to Secretary Newton D. Baker.

Following out his campaign to do away with the name "pleasure car" for passenger car, R. B. Simning, assistant secretary of the Minneapolis Automobile Trade Association, has sent a recent New York paper editorial to 3475 bankers in the State urging the change, and a copy is to be sent to every dealer in the Northwest. The dealers are asked to have the article printed locally and to have it given to prospects.

Dealer Drive-Aways Rapidly Increasing

Freight Car Shortage Forces Deliveries Over Roads—Buick Drives 4000 Monthly

DETROIT, Dec. 7—The number of drive-aways is increasing, due to the freight car shortage. None of the manufacturers are proud of the fact or like to admit it, because they feel that the cars so delivered are under a shadow, especially when driven to points as far away as Des Moines or the Eastern coast. But it is a war necessity, and for the present is about the only relief from the tied up traffic conditions.

The Buick Motor Co. is at present driving away about 4000 cars monthly—at the rate of 150 per day. Most of these are being driven to neighboring points for shipment. For example, before the lake routes closed cars were driven to Detroit. At present those going to Oklahoma and Western points are driven to Alma, Mich., for shipment. Those going through Ohio and to mid-Western parts are driven to Cincinnati. To a certain extent flat cars are aiding shipment, as these are at present available. And Buick expects to continue drive-aways until the middle of January, when snow will prevent them.

The Briscoe Motor Co. was formerly driving away about 100 cars per week, and at present is driving away about 25. Though most of these go to nearby points, many have gone as far as Pittsburgh. Pa., and Jackson, Fla. The Oakland Motor Co., Pontiac, is driving away in about the same proportion, a recent one consisting of 86 cars for Atlanta, Ga. This company was fortunate in obtaining 50 new freight cars for shipment of an assignment to Seattle, which will be sent in one week, and also in obtaining the use of a circus train for Southwestern shipments.

The Reo Motor Co. reports that embargoes and car shortage have made shipments bad, and that at present about 25 cars per day are being driven away. These go to Indiana, western Pennsylvania, New York, southern Illinois, Indiana and Wisconsin, and some to Iowa. The Dayton, Ohio, dealer states that he can beat the railroad time each way, driving to the factory, getting the cars and driving back. On a carload shipment he can save $8 per car by this method.

The expense of a drive-away, as compared to freight car shipments, depends, of course, upon the distance and the road conditions. Dodge Brothers dealers in Iowa and Nebraska claim that they can drive away at from $5 to $10 more than freight rates were freight cars available.

While there is a slight prejudice on the part of the buying public against cars thus delivered, it must be realized that it is about the only method of getting cars at all, and that cars so delivered

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"Simple Simon went a-fishing for to catch a whale,
But all the water that he saw was in his mother's pail."

are not harmed, but improved, if the drive-away be carefully made. The present trend indicates that with better roads and increased freight traffic, drive-aways will be the rule rather than the exception next summer. The Government is already planning to do that with its war trucks, and truck makers are now loading one truck on another and delivering overland.

Wilmington Plans New Association

WILMINGTON, DEL., Dec. 8—More intimate trade relations are to obtain between the motor car establishments of Wilmington heretofore than in the past. The foundation for this spirit was laid at a meeting held last night by the Wilmington Automobile Association, the prime object of which was to appoint committees and otherwise plan for the next annual show, which will be held at the Hotel duPont the week of Jan. 21. During the meeting several members spoke of making the association a "year-round" affair to the extent of friendly relations and everybody was enthusiastically back of the idea. The outcome, in all probability, will be the formation of a motor trade association for the city. It was also decided to eliminate the show closing banquet, which has been a feature of past shows, the money which would be spent for a dinner to be used in making the show better than any of the predecessors. The idea of food conservation prompted this decision.

The Delaware Automobile Association has also decided to show its patriotism by having no banquet this winter, contrary to the annual custom, which is to have a dinner in February of each year.

Fuller Helps the Government

BOSTON, Dec. 8—Congressman Alvan T. Fuller, Packard car and truck distributer, has started out aggressively to help in the war work by releasing a number of his best men for Government work, and assisting his remaining employees to take care of those in the service. There was a dance of the Fuller employees at the Packard salesrooms this week which netted $800 to buy things for the soldiers. In addition to this Fuller subscribed for $1,000,000 worth of Liberty Bonds. Then he sent a check of $1,000 to the Y. M. C. A. war fund and another for $1,000 to the Knights of Columbus war fund. Following up this work he went to Washington and put in a bill to have taxed the salaries of all the members of Congress and the Senate, saying that as they had put burdens on the people who elected them they should share in it themselves. Fuller is the only member of Congress who refuses to accept any salary from the Government.

New Firestone Blow-Out Patch

AKRON, Dec. 10—The Firestone Tire & Rubber Co. is adding to its already extensive line a special blow-out patch for distribution by jobbers exclusively. Deliveries are now being made.

War Bringing Change in Selling Methods

One Dealer Finds an Entirely Different Class of Buyers—Sales Picking Up

DETROIT, Dec. 7—During the past two weeks retail car sales have picked up. Sales are not normal yet, but up and down the row those dealers who have been plugging are beginning to get results. One of these, the L. J. Robinson Co., has found that the war has completely upset the prospect field and necessitated a complete change in selling methods. A house to house canvas was made of the various districts, and this proved, first, that the rich, or so called well-to-do class, are not buying cars. These people have their money tied up for the present at least, and are making old cars do. But it showed that those people that last year could not afford cars now can, and are buying them.

In this class are the mechanics and small retailers. The mechanics are getting good wages and the retailers are getting the benefits from the present high prices. For example, the canvass showed that out of 10 second-hand clothes dealers on one street, nine owned cars, and none of them cost less than $1,000. Several cars were sold to men that could not make out their own checks. Drug store owners were found to be worthless prospects unless owners of chain stores or employing several clerks —their hours are too long. And all of these were of a class never solicited, and that seldom came to the salesrooms to buy a car.

Used car sales are, however, very slow, and many are holding them until the spring for a hoped increase in prices.

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13 Ithaca Dealers Go on Strict Cash Basis

Run a Blanket Ad in Newspapers Telling of Their New Plan of Operation

ITHACA, N. Y., Dec. 7—The cash basis system for garages is spreading rapidly. Dealers in this city are adopting the idea, thirteen garagemen having promised to conduct their garages on a strictly cash basis, and are advertising this change of plan in the daily papers. They are the J. B. Lang Engine & Garage Co., Security Garage, Groton Auto Co., Bailey Garage Co., Marion Bros., A. W. Davis, Murray Garage, J. Pritchard & Son, Cole Garage Co., Merrick Auto Exchange, G. W. Race & Son, Bush & Stafford and E. J. Trapp.

Duluth Adopts Cash Basis

DULUTH, Dec. 10—Automobile dealers have gone on a cash basis for repairs and supplies. Beginning to-day 29 members of the Duluth Automobile Dealers Association will require cash on delivery for supplies, tires, parts or sundries and repairs. This move is expected to permit greater service to the trade and will aid in offsetting greatly advanced costs of operating.

Champion Clan Assembling

TOLEDO, Dec. 10—Members of the sales force of the Champion Spark Plug Co. are assembling in Toledo for their annual sales convention. They will be the guests of the company for the week beginning Dec. 17. The program arranged for the convention is a varied one. The business sessions include journeys through the Toledo and Detroit factories, talks by prominent men in several fields of endeavor, round table discussions, moving pictures, practical demonstrations of salesmanship and innovations intended as a surprise to the salesmen. One of the features of the recreative side of the convention is to be an indoor athletic meet at which members of the sales staff will be afforded an opportunity to display their prowess as athletes. F. B. Caswell, sales manager of the Champion Spark Plug Co., is in charge of the convention program.

Lectures for Portland Dealers

PORTLAND, ME., Dec. 7—The Portland Automobile Dealers' Association is planning a series of lectures for its members and guests. The lecturers will be men well known in the industry.

Frint Dealers Invade Lansing

MILWAUKEE, Dec. 8—Fifty Oldsmobile dealers of Wisconsin made a trip to the factory in Lansing on Dec. 5 under the auspices of the Frint Motor Car Co., Milwaukee, Olds distributer in Wisconsin, which recently entertained the dealers as a sales convention in Milwaukee. The party made the trip in a private car. Forty-five of the dealers purchased cars to be driven to Wisconsin points, the entire party returning in this manner. Milwaukee was reached Friday evening, Dec. 7.

Texas Factory for Boone

CHIPPEWA FALLS, Dec. 8—The Boone Tire & Rubber Co. is establishing a southwestern factory branch at Fort Worth, Tex., to be opened Jan. 1. The company maintains a large plant in Sycamore, Ill., and is completing its main works at Chippewa Falls, which will be ready at the end of the year. I. V. MacLean, president and general manager, is now in Fort Worth to supervise the establishment of the branch.

Move Canadian Maxwell to Windsor

DETROIT, Dec. 6—The Maxwell Canadian sales office has been moved from Windsor, Canada, to Walkerville, where the Chalmers Motor Co. has its Canadian headquarters. This consolidation of the offices is simply the Canadian phase of the situation here, whereby the Maxwell company has obtained a five years' lease of the Chalmers Motor Co. It does not mean that the actual sales force are consolidated, though Louis Logie is Canadian sales supervisor for both Maxwell and Chalmers.

Jobbers Get Winter Sticker

CHICAGO, Dec. 8—Stickers for promoting the Winter Business idea are to be furnished to members by the National Association of Automobile Accessory Jobbers. The Committee on Assisting the Trade plans to distribute thousands of these among members. The committee is already running constructive advertising in trade papers.

Maxwell Earnings Ahead of 1916

DETROIT, Dec. 6—From August to October of the new fiscal year the $980,000 dividend requirements of the Maxwell Motor Co. were covered with a substantial surplus. The net earnings are running ahead of those of last year during these months. The resumption of dividends on the second preferred is not contemplated in the near future, as a strong working capital is required for the war business after being added to the regular line. For this reason payment for other than the first preferred is not indicated for some time.

G. M. Stock for Employees

PONTIAC, Dec. 8—Employees of the Oakland Motor Car Co., as well as Oakland dealers, branch managers and distributers, are being offered the opportunity to subscribe for General Motors common stock. The stock offered was purchased in the open market. It is said that applications already largely exceed the block of stock set apart for the purpose.

Roadlighter Is Twin to Shaler Vulcanizer

Shaler Invades New Field with a Lens—$2.75-$3.50—Vulcanizer Business Increasing

WAUPUN, WIS., Dec. 10—The C. A. Shaler Co., long known in the vulcanizer field, has entered a new and entirely different field. It has obtained the sole selling rights for a new type of headlamp lens which is to be marketed under the style Shaler Roadlighter. The lens is made of molded optical glass, smooth on the front and having a series of prisms on the back which reflect all projected light so that it does not rise higher than 42 in. above the road, and also illuminates at the sides as required by the lighting laws in various states. Various sizes will be made, those for Fords selling at $2.75 and for all other cars at $3.50. The addition of the Roadlighter does not mean that the vulcanizer business will be curtailed; on the contrary it will be practically doubled in 1918.

U. S. Truck Pushes Production

CINCINNATI, Dec. 8—The United States Motor Truck Co. is increasing its production rapidly and at present is carrying production of 150 trucks at all times. These trucks range from 2½-ton to the 5-ton capacity. Sufficient material is on hand to permit this expansion, and the second floor of the assembly building, now being used for storage, can be devoted to assembling. The distributing force is being increased to care for the increasing production.

Detroit Starter Becomes Versal

DETROIT, Dec. 5—The Detroit Starter Co. is now styled Versal Products Co. For some time the company has given its products the trade name "Versal." The former name was a misnomer, as the company has discontinued the manufacture of starters.

Reinhard Made Gray & Davis Distributer

BOSTON, Dec. 10—Reinhard Bros. Co., Minneapolis, has been appointed sole distributer of Gray & Davis starting and lighting systems for Fords in the territory embracing northern Wisconsin and North and South Dakota.

Scrap Metal Prices

NEW YORK, Dec. 8—Following are the prices paid by New York dealers for scrap metal during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible	22.00
Copper, heavy and wire	21.00
Copper, light and bottoms	19.00 to 19.50
Brass, heavy	14.25 to 14.50
Brass, light	10.50 to 10.75
Heavy machine composition	20.00 to 21.00
No. 1 yellow brass turnings	14.25 to 14.50
No. 1 red brass or composition turnings	17.50
Lead, heavy	5.50
Lead, tea	4.00
Zinc	5.75

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

C. Roy Clough has been appointed sales manager of the Stephens motor branch of the Moline Plow Co. During the past year he has represented the Stephens car as Eastern district sales manager.

E. A. Scheu, for five years with Packard, is now the Eastern traveling sales representative for the King Motor Car Co., Detroit.

Elbert J. Jenkins has resigned the presidency and general managership of the Four Drive Tractor Co., Big Rapids, Mich., and intends locating elsewhere.

H. Belden Joseph, assistant advertising manager of the Kelly-Springfield Tire Co., New York, has resigned to join the United States army.

Edgar Apperson, who for 25 years has been associated with his brother, Elmer Apperson, in the manufacture of Apperson cars, has just been elevated to the general management of the company.

Urving G. Thomas, production and efficiency engineer of the Hercules Motor Mfg. Co., Canton, Ohio, has resigned.

A. G. Mahaffey is assistant branch manager at Cleveland for the Oakland Motor Car Co. He was formerly sales manager of the Gray Tractor Co., Minneapolis, Minn.

H. B. Young is manager of the Cleveland branch of the Chicago Pneumatic Tool Co., Cleveland. The territory extends from northern Michigan to New Orleans, La.

W. B. Cole, San Francisco, has been appointed manager of the Seattle branch of the Fisk Rubber Co., to replace W. E. Bayless, who has resigned.

H. P McQuiston has been made manager of the Used Car Department of the Hudson-Phillips Motor Car Co. of St. Louis, in which city he established the Used Car Exchange.

P. J. Foster, for two years assistant manager for the Northern Rock Island Plow Co., Minneapolis, has been appointed district manager for the Federal Motor Truck Co. of Detroit, covering Illinois, Wisconsin, Minnesota, North Dakota and Montana, with headquarters in Minneapolis. Foster has been with the Northern Rock Island Plow Co. five years, beginning as floor salesman.

F. W. Grubb, Minneapolis, formerly general salesmanager for the Union Supply Co., Toledo, and of the Fulton Grubb Co., Chicago, has associated himself with the Empire Tire & Rubber Co., distributing automobile accessories in the Northwest.

W. M. Blackburn, formerly of the Warner & Swasey Co. and more recently purchasing agent of the F. B. Stearns Co., will be Supervisor of Estimates for the Standard Parts Co., Cleveland, O.

T. R. Atkinson has resigned as president of the Atkinson Automobile Co., Wilmington, Del., and disposed of his entire holdings in the concern in order to accept a commission in the Officers' Reserve Corps. He has been ordered to report for duty at once in Washington.

Allan C. Chambers is assistant sales manager of the Russell Motor Axle Co., Detroit, in charge of sales promotion and advertising.

A. R. Johnson has been made assistant advertising manager of the Motor Bearings Sales Division of the Hyatt Roller Bearing Co.

W. L. Van De Wiele has been made manager of the truck department of the Van Cortland Vehicle Corp., New York, Peerless car and truck distributer. He was formerly New York branch manager for the Mack Motor Car Co.

Howard Emery, manager of the Manitowoc (Wis.) foundries and branch offices of the Aluminum Castings Co., Cleveland, has been made general manager of the company's interests at Detroit. He will assume his new duties about Jan. 1. No announcement is made of his successor at Manitowoc.

William A. Carrell has been appointed engineer and works manager of the Erde Motor Co., Saginaw. He was formerly superintendent of the motor plant of the Milwaukee works of the International Harvester Co.

Bumper Association Dissolved

NEW YORK, Dec. 10—The Automobile Bumper Association, formed about a year ago by the principal manufacturers of bumpers, has been dissolved by the consent of the manufacturers to a decree of the United States District Court for the Southern District of New York. The association was concerned with the pooling of patent rights and price regulation. The corporations mentioned in the decree are: Gemco Mfg. Co., Central Brass & Fixture Co., Emil Grossman Mfg. Corp., J. H. Sager & Co., Inc.; Cox Brass Mfg. Co., Milwaukee Auto Engine & Supply Co., L. P. Halladay Co., American Brass Co., Auto Compressor Co., U. S. Auto Bumper Co. and Auto Parts Mfg. Co.

No Advance Planned by Ford

DETROIT, Dec. 7—The treasurer's office of the Ford Motor Co. advises that no $100 price increase is expected on Jan. 1. If such a price increase has been planned, the treasurer's office has not been notified.

Demand Time Deals Now for Good Reason

Buyers Now Looking for Real Accommodation—Dealers Report Business Normal

NEW YORK, Dec. 10—Business along New York's Motor Row remains about the same as it was last week. Following the readjustment to new conditions and the lessening of sales by a certain percentage, things have gone along on a pretty even keel.

There is a demand for small cars of the lower prices, and those cars in the extreme high priced class also report a business that is practically the equal of that done a year ago. There is some difference in time sales.

People who bought on time because they actually did not have the money to buy with are not buying in such large numbers now. Many buyers who seem to be in the class which could pay cash if it wanted to state that their money is being used elsewhere and that they wish to purchase on time for that reason. The dealers are not, as a rule, going after time payment business now.

Torbensen Men Band Together

CLEVELAND, Dec. 7—Thirty department heads, foremen and other officials of the Torbensen Axle Co. have formed the "Foremen's Club of the Torbensen Axle Co." Two meetings are to be held each month, the first a business session and the second a social session. The following officers were elected to serve for the first six months: President, J. L. Ballash, assistant superintendent; vice-president, F. A. Buchda, chief accountant; recording secretary, C. F. Rubin, stock supervisor; financial secretary, V. Cada, production superintendent; treasurer, T. H. Campion, auditor.

Motor Car Security Quotations

	Dec. 8, 1917 Bid	Asked
*Ajax Rubber Co.	47	50
*J. I. Case T. M. Co., pfd.	..	78
Chalmers Motor Co., com.	2	4
Chalmers Motor Co., pfd.	..	50
*Chandler Motor Co.	63	64
Chevrolet Motor Co.	62	64
*Fisher Body Corp., com.	20	34
*Fisher Body Corp., pfd.	75	80
Fisk Rubber Co., com.	..	45
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2d pfd.	60	70
Firestone Tire & Rubber Co., com.	97	100
Firestone Tire & Rubber Co., pfd.	97	100
*General Motors Co., com.	87	88
*General Motors Co., pfd.	74	75
*B. F. Goodrich Co., com.	35	37
*B. F. Goodrich Co., pfd.	93½	97
Goodyear Tire & Rubber Co., cm.	144	148
Goodyear Tire & Rubber Co., pfd.	97	99
Grant Motor Car Corp.	2	3
Hupp Motor Car Corp., com.	2	3
Hupp Motor Car Corp., pfd.	74	79
International Motor Co., com.	11	15
International Motor Co., 1st pfd.	30	50
International Motor Co., 2d pfd.	20	25
*Kelly-Springfield Tire Co., com.	39	41
*Kelly-Springfield Tire Co., 1st pf.	75	80
*Lee Rubber & Tire Corp.	13	14

	Dec. 8, 1917 Bid	Asked
*Maxwell Motor Co., Inc., com.	26	27
*Maxwell Motor Co., Inc., 1st pfd.	55	56
*Maxwell Motor Co., Inc., 2d pfd.	20½	22
Miller Rubber Co., com.	125	130
Miller Rubber Co., pfd.	95	98
Packard Motor Car Co., com.	110	118
Packard Motor Car Co., pfd.	92	96
Paige-Detroit Motor Car Co.	10	12
Peerless Truck & Motor Corp.	11	12½
Portage Rubber Co., com.	109	114
Regal Motor Car Co., pfd.	10	20
†Reo Motor Car Co.	15	17
*Saxon Motor Car Corp.	6	8
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	9	10
Standard Parts Co.	..	75
*Stewart-Warner Speed. Corp.	46	48
*Studebaker Corp., com.	42	43
*Studebaker Corp., pfd.	..	95
Swinehart Tire & Rubber Co.	19	20
United Motors Corp.	15	15½
*U. S. Rubber Co., com.	49	50
*U. S. Rubber Co., pfd.	95½	97
*White Motor Co.	36	38
*Willys-Overland Co., com.	18	19
*Willys-Overland Co., pfd.	70	71

*At close Dec. 8, 1917. Listed New York Stock Exchange. †Par value $10.

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Packard Replaces Men With Women Workers

More Than 500 Now Employed and Number Will Be Increased—Army Takes 978 Men

DETROIT, Dec. 7—Employment office records at the Packard factory show that 978 men who have left the factory since April 15 left to join either the army or navy. This is almost 8 per cent of the entire number of employees in the plant. The labor department realized early last summer that labor shortage was imminent and began to train women to fill the vacancies. The result is that nearly 500 women workers are employed, most of these doing work formerly done by men, and it is expected that this number will be materially increased during the coming draft.

These women are engaged in the following occupations: Upholsterers, body trimmers, automatic screw machine operators, drill press operators, inspectors of small parts, top makers, time-keepers and factory office help. Some of the young women are very proficient in the work of inspection, particularly on the use of delicate instruments, such as the micrometer and scleroscope, and one of the girls is capable of assembling and disassembling an engine, clutch, gearbox and other parts of the car. However most of the women are employed in the carriage division, as they seem best fitted for this work.

It has been found where a high grade of work is required a transfer from men to women labor necessitates extreme care in order to keep up the quality of the work. For this reason considerable time is taken up in determining the grade of work each woman is best suited to handle. As a rule, the women workers are not new to industrial work, although a few are taking up this work purely because of patriotic motives.

In order to render this breaking-in period most effective a school was instituted last July for teaching women how to trim bodies. During the first month 40 students were able to turn out only four completely trimmed bodies. In October they turned out 104 and will soon be moved into the main factory on regular work. Though this is the only instance in which the school system has been used the progress here is typical of the progress in other departments, and as a rule they are very efficient workers.

R. E. Ingersoll Dead

R. E. Ingersoll, vice-president of the Reo Motor Car Co. of New York, died suddenly on Dec. 3. He was born at Randolph, N. Y., July 19, 1877. After finishing his education at the Chamberlain Institute he started his business career with John Wanamaker, in New York, as assistant buyer in the automobile and sporting goods departments. After severing that connection he went with the Pope Mfg. Co., Hartford, Conn., and at the age of 26 was placed in charge of its affairs at the St. Louis Exposition. In 1905 he became connected with the Reo Motor Car Co.

Maxwell Truck on Endurance Run

NEW YORK, Dec. 10—The Maxwell Motor Sales Corp., this city, is sending a Maxwell truck on a 2500-mile Southern trip under A. A. A. observation and sanction. The truck is carrying a load of groceries from New York to the Government camp at Spartanburg, S. C., guaranteeing that the shipment will cost one-half the express rate. An average of 15 miles an hour is planned.

Motor World Editors Serving Their Country

Blanchard, Spooner and Huppenbauer Leave Their Desks to Join the Colors

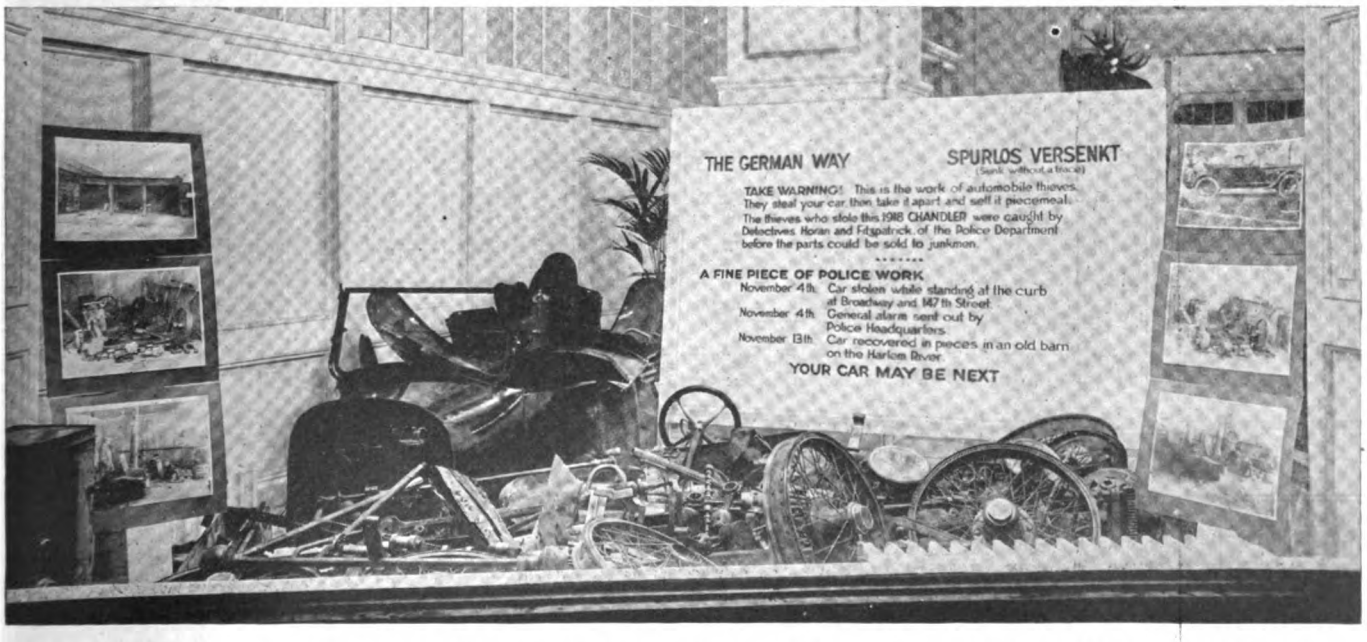
NEW YORK, Dec. 10—Three members of the editorial staff of Motor World have joined the colors. Harold F. Blanchard, who first started with Motor World October, 1913, and who has been compiling all the articles on Scientific Garage Construction, will become an Ensign in the Aviation Section of the United States Navy. He leaves at once for Boston, where he will study at the Boston Institute of Technology for a period of about six weeks; he then goes for instruction to an airplane factory, and eventually will become either an inspector of airplane engine assembly or will have charge of a base repairshop.

Eugene F. Spooner, who first became connected with Motor World in January, 1912, and who has been handling much of the local news, has left for Newport, R. I., where he will become an enlisted man in the navy. He is the son of F. Ed. "On-the-Spot" Spooner, one of the best known publicity men of the old bicycle and present motor car business.

Harry F. Huppenbauer, who joined the staff of the art department in September, 1913, leaves to-day for Washington to take a position in the drafting department under General Crozier.

Coast Dealer Takes on Tractor

SPOKANE, Dec. 10—The Eldredge-Buick Co. has been appointed distributer of the Sampson tractor, manufactured by the General Motors Co. The territory involved covers Washington and Oregon and the province of Alberta.



WHEN THIEVES STOLE A CHANDLER in New York they took it, as is their practice, to a barn in the Bronx and turned a perfectly good new car into junk. The Brady-Murray Motors Corp., which handles the Chandler, secured the pieces through the police and made a display in its Broadway window. At the left are pictures of the barn where the car was dismantled.

The window attracted big attention

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Make	Motor	S. A. E.	Ignition	Carburetor	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1295	†1295	1295	....	1920	....	....
6-60	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN-SIX																	
A	6-3½x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Conn	Zenith	Wstha	DP	3	120	32x4	SS	....	1495	....	....	2165	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	34x4	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	23.4	Remy	Rafid	Remy	DP	3	120	34x4	SS	1295	1295	....	....	....	....	1545
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	†1635	1635	....	2400	....	1935
AUSTIN																	
Hv-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	QD	3750	3750	4000	4550	4950	5350	....
BELL																	
17	4-3½x5	19.6	A.Kent	Zenith	Dyneto	D	3	112	31x4		....	895	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	3600	....	†3650	....	4100	†4000	....
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1385	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....		....	....	....
E44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1365	1365	....	†1695	....	....	1465
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{122 {125	35x5 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
T17	4-3½x6	21.0	Conn	Rafid	A-Lite	C	3	120	34x4	SS	†1190	....	1190	....		....	....
U	6-3½x5½	29.4	Wstha	Rafid	Wstha	D	3	125	35x4½	SS	†1875	....	1875	....	2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wstha	DP	3	{117 {122	32x4 34x4	SS	1365	1365	1450	....	1850	2025	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	G & D	D	3	123	34x4	SS	1595	....	1595	2195	2295	2695	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	620	620	....	....	1060	....	....
FA-5																	
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	106	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.45	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE															{2695		
860	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1995	....	1995	2495	2795	....	....
COLUMBIA																	
	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1395	....	....	1995	....	....
COMET																	
6-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	...	....	....	....	...
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114½	32x3½	SS	†995	{985 {995	....	1195	1275	....	...
DANIELS																	
B	8-3½x5	33.8	Wstha	Zenith	Wstha	D	3	127	34x4½	QDR	†3100	3100	3100	....	....	....	...
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	...	....
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1785	1785	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D		119	33x4	SS	†1395	1395	†1425	....	1875	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	30x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
1835	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995		....	1295	...	...
DOBLE	2-5 x4	....	Own	Dobl Stmb	Wagner			125	35x5	....	....	....	2500	....	....	....	....

Model	Motor	S. A. E.	Ignition	Carburetor	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MADISON																	
4	.....	...	.....	.....	.....	..	.	124	34x4	....	.....	....	....	....	....	....	....
	6-3½x5½	28.4	Remy	Rafid	Remy	DD	3	115	34x4	SS	†1485	1485	1485	1095	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795	..	....	1095	...	....	865
B	6-3½x5½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	...	1375	1375	....	....
MARION HANDLEY																	
6-60	6-3½x5½	29.4	Wstha	Stmbg	Wstha	DD	3	125	35x4½	SS	†1850	....	1850	....	2500	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	4950	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	†745	[745	....	1095	1095	1095	955
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wstha	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Racebout	$3250	...	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wstha	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	200x
C-42	6-3½x5	29.4	Conn	Stmbg	Wstha	C	3	127	34x4	SS	†1490	1510	1535	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1575	1575	....	....	2290	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1950	....	1950	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	110	32x3½	SS	990	995	....	....	....	....	....
M-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	†695	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	1095	....	....	....		....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	....	....	1195	....	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafid	Delco	DD	3	125	34x4	SS	†1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2450	2450	....	....
MURRAY																	
1918	8-3½x5	38.8	Dixie	Zenith	Wstha	DP	3	128	34x4½	..	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-684	6-3½x5	25.4	Delco	Marvel	Delco	P	3	121	34x4	SS	1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wstha	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.7	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	†990	990	....	{1150 {1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	...	....	....	....
37	6-2½x4½	18.9	Delco	Johnson	Remy	C	3	113	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	37	Conn	Carter	A-Lite	D	3	114	32x3½	....	†965	965	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	33x4	SS	$915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	{104 {106	31x4	C	780	795	†840	....	1240	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	2900	....	3650	....	4250	....
O-36	6-3½x5½	33.6	Bosch	Zenith	O-M	O M	6	136	35x5	SS	†3650	†3650	3650	....	....	5000	....
PACKARD																	
2-35								{136					4100				
2-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	125	35x5	QD	....	3700	3700	5050	....	5350	....

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DODGE BROTHERS																		
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	SS	895	895	....	1350	1350	....	....
DORRIS																		
I-C-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	130	36x4½	SS	....	....	2785	3235	3350	4150	....
DORT																		
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	105	30x3½	QD	‡795	795	....	....	1095	....	845
ELCAR																		
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....
ELGIN																		
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	1645	....	....	....
EMPIRE																		
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1135	....	....	....	....	....
70-A	6-3½x4½	25.4	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1375	1345	....	1635	....	....
FIAT																		
55	4-5½x6½	42	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																		
T	4-3½x4	22.5	Own	{Holly Kngstn	....	D	2	100	30x3½rC		345	360	....	500	605	....	....
FRANKLIN																		
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4 33x4½	SS	2000	2050	....	2650	2950	3300	....
GLIDE																		
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																		
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡875	875	....	....	....	....	....
HAL TWELVE																		
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2900	2900	2900	....	3500	4500	....
HALLADAY																		
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	785	....	....	....	....	....
HARVARD	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	†985	....	....	....	....	....	....
HOWARD																		
	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	....	....	....	....	....	....
HAYNES																		
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1735	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																		
196	6-3 x4½	21.6	Remy	Stewart	Apico	C	3	116	32x3½	SS	....	1085	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Apico	C	3	116	34x4	SS	†1285	1285	....	....	....	....	....
HUDSON																		
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	†1750	1650	1950	2175	2925	....
HUPMOBILE																		
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
	4-3½x5½	22.5	A.kent	Zenith	Wsths	D	3	119	34x4	SS	1385	1385	....	....	....	....	....
NU	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1540	....	....	....	....
INTER-STATE																		
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†950	....	....	....	....
JACKSON																		
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	....	....	1675	1675	....	2550	....	....
JORDAN																		
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2650	3300	....
KING																		
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	‡1585	†1700	1650	....	2300	....	....
KISSEL																		
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1395	1295	1385	1735	1735	....	1735
Double-6	12-2½x5	39.7	Delco	Stmbg	Own	DD	3	...	34x4½	....	1385	....	2350	....	3050	....	3050
KLINE																		
6-38-G	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1395	1395	†1395	....	....	....	....
LEXINGTON																		
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	33x4	QD	....	1345	....	....	1510	....	....
6-R	6-3½x4½	25.4	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	....	1585	....	1785	....	....
LIBERTY																		
6	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																		
38 Series II	6-4½x5	43.3	Berling	Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																		
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Elsmn	Rafid	G & D	D	5	133	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																		
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	133	35x4½	SS	....	....	1650	....	....	....	....
PAIGE																		
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1390	1390	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	36x4½	SS	....	....	1775	2650	....	3650	....
PAN-AMERICAN																		
	6-3½x5	28.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1600	....	....	....	....	....
PARTIN PALMER																		
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
PATERSON																		
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	33x4	C	†1295	1265	1295	....	....	....	....
PATHFINDER																		
3-A, B, C	12-2½x5	30.7	Delco	Stmbg	Delco	DD	3	135	36x5	SS	2250	2250	2250	....	....	....	....
PEERLESS																		
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2240	2850	2990	3690	....
PIERCE-ARROW																		
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4900	4900	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																		
6-45	6-3½x5	23.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																		
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																		
4-36	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..	825	825	1625	....	....	....	....
REGAL																		
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																		
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	†1285	1285	....	....	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡965	965	....	....	....	....	....
ROAMER																		
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	DP	3	127	34x4	SS	2150	1850	....	....	....	....	....
ROSS																		
	8-3½x5	33.8	....	....	W.Lard	DD	3	130	36x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																		
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	895	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	935	....	1305	....	....	....
SAYERS	6-3½x4½	25.3	Delco	....	Delco	P	3	....	33x4	....	....	1295	....	....	....	....	....
SCRIPPS-BOOTH																		
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1425	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	1250	....	....	....	....	....	....
SIMPLEX																		
5	6-4½x6½	45.9	Elsmn	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7900	....	....	....	....	....
SINGER																		
17	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	130	35x5	QD	3800	†3800	3800	....	....	4750	....
STANDARD																		
8	8-3½x5	33.8	Splitdf	Zenith	Apico	D	3	127	35x4½	....	†1950	....	2000	....	2500	3500	....
STANLEY																		
Steamer	2-4 x5	....	....	....	....	..	.	130	35x4½	SS	‡2200	2300	2300	....	....	....	....
STEARNS																		
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2875	3300	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	33x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																		
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	117½	33x4	....	‡1485	1485	....	....	1985	....	....
STUDEBAKER																		
SF-4-40	4-3½x5	24.2	Remy	Schebler	Wagner	C	3	113	34x4	SS	‡1025	....	1050	....	....	....	1250
ED-6-50	6-3½x5	36.4	Remy	Schebler	Wagner	C	3	122	36x4½	SS	1335	‡1335	1385	1850	1850	2750	1565
STUTZ																		
S	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	130	33x4½	SS	2550	†2650	*2750	....	....	....	....
S.Bearcat	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	33x4½	SS	2550	....	....	....	....	....	....
SUN																		
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
VELIE																		
28	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	33x4	SS	1340	1340	†1340	....	1885	....	....
30	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																		
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	2790	2790	....	....
WHITE																		
16-Valve	4-4½x5½	28.9	.....	Own	L.N.	P	4	{124½ 137½	35x5 35x5	U	†4600	....	4850	5650	5650	5800	....
WILLYS-KNIGHT																		
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1525	2175	2225	2825	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2000	....	2700	3800	....
WILLYS																		
89-6	6-3½x5½	29.4	Conn	Titan	A-Lite	C	3	120	33x4½	SS	†1365	....	1365	....	2045	....	....
WINTON																		
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2650	2650	2000	3865	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4850	4750	4750	....
WOODS'																		
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag		124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Titan" Tillottson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Maxwell Men Talk Truck

ST. LOUIS, Dec. 7—F. L. Buckbee, zone manager for the Maxwell Motor Co., told 75 Maxwell dealers here last Tuesday that the day of the truck was just dawning and that every dealer should get behind and push. He told them of a few of the many instances in the East where the truck is supplanting the railroads for transportation, and he predicted that most of the home towns of these dealers would be connected with St. Louis by regular lines of trucks before another year. He advised the dealers to be watchful of opportunities. The dealers were here as the guests of the Weber Implement & Automobile Co. Other speakers were: George Weber, president of the host company, and these Maxwell factory men: W. F. Frise, truck lecturer; I. O. Taft, district supervisor; J. J. Neitz, chassis lecturer; F. B. Ayer, service instructor, and R. E. Wells, district salesman.

Omaha Overland Branch Sold

COUNCIL BLUFFS, IOWA, Dec. 7—The Van Brunt Auto Co. has taken over the Omaha Overland branch, including a territory of twenty-two counties and the city of Omaha. Fourteen Iowa counties are now held by the Van Brunt Co. for the Overland. George Van Brunt will be in charge of the Omaha house while Harry Van Brunt will remain in Council Bluffs. The deal is one of the most important automobile transactions in western Iowa for several years.

Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

Ft. Dodge, Ia.	Ft. Dodge Auto Dealers' Assn G. W. Tremain, Mgr.	1918 ....January
New York, N. Y.	Salon, Automobile Salon, Inc., Astor Ballroom. John R. Eustis, Mgr.	....Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	....Jan. 5-12
Kansas City, Mo.	Third Annual Tractor Show	...Jan. 11-16
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	...Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	...Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wannamaker's Garage.	...Jan. 12-19
Rochester, N. Y.	Tenth Annual Exposition Park C. A. Simmons, Mgr.	...Jan. 14-19
Detroit, Mich.	Willis Ave. Overland Service Station.	...Jan. 19-26
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	...Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	...Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	...Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	...Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	...Jan. 19-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	....Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	...Jan. 21-26
York, Pa.	York Auto Dealers' Assn., Queen St. Tabernacle. T. F. Pfeiffer, Sec.	...Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	...Jan. 21-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	...Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn. Armory. Hugh B. Andrews, Mgr.	
Baltimore, Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory	...Jan. 22-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	...Jan. 23-28
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	....Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	.....Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn J. Clyde Myton, Mgr.	.....Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	.....Jan. 26-Feb. 2
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	.....Jan. 28-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	.....Jan. 28-Feb. 2
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	.....January
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	....February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	....February
Minneapolis, Minn.	Minneapolis Auto. Trade Assn Walter B. Wilmot, Mgr.	....Feb. 2-9
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n. Malurah Temple. William M. McNulty, Mgr.	.....Feb. 5-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	.....Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn. E. E. Peake, Mgr.	....Feb. 9-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	...Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	...Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	...Feb. 16-23
San Francisco, Cal.	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.	...Feb. 16-24
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	...Feb. 16-24
Waterbury, Conn.	United Shows Co.	.....Feb. 18-23
Des Moines, Ia.	Ninth Annual Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet & Dean Schooler, Mgrs.	...Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	...Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	...Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	...Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	...Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome.	....Feb. 18-23
Des Moines, Ia.	Second Annual Truck, Auditorium. Dean Schooler & C. G. Van Vliet, Mgrs.	...Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	...Feb. 18-27
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., Twenty-third Regiment Armory. I. C. Kirkham, Treas.	.....Feb. 22-Mar. 9
	Commercial Vehicles	.....Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn., Auditorium.	.....March
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino. B. B. Steiber, Mgr.	.....Feb. 25-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	.....Feb. 27-Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clark G. Powell, Mgr.	.....Feb. 28-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	.....Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	.....Mar. 2-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n, Coliseum.	.....Mar. 6-9
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	...Mar. 19-24
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	...Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	....Apr. 9-13

Conventions

New York	Nat'l Auto Dealers' Assn., Meeting board of directors and vice-presidents from Eastern States.	1918 .....Jan. 7-8
Montreal, Can.	Convention of all men Interested in the Automobile Industry in Eastern Canada.	...Jan. 22-24
New York	Convention, National Assn. of Auto Accessory Jobbers, Hotel Astor.	...Feb. 11-16

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National

Airplane Type Motor

Full Usefulness the Year 'Round

No car has done more to make year 'round motoring permanently popular and practical than this new twelve-cylinder National Touring Sedan.

Whether used as an open summer vehicle or a closed winter equipage, it is equally serviceable and satisfactory.

It combines the elegance and comfort of the fine closed body with the ability and range of a touring model.

Its powerful and energetic twelve-cylinder airplane type motor makes it as capable for cross-country driving as for dignified city use.

This new twelve-cylinder National Touring Sedan is a big car, accommodating seven passengers, yet it is easy to drive and economical to own.

Positive control at every speed, perfect balance, a short turning radius and extreme ease of handling make it a favorite with the owner-driver, whether man or woman.

It is an exceptionally beautiful car, very carefully built throughout, and its gasoline and tire mileage are surprisingly high.

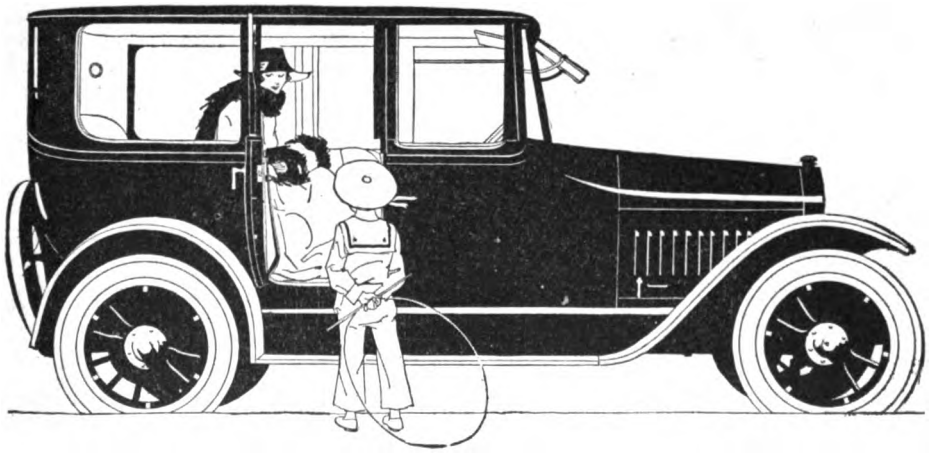
To the dealer who realizes how vitally true value bears on his future, it offers an opportunity that cannot be disregarded.

Complete Range of Body Styles in Both

Six and Twelve Cylinder Models

7-Passenger Touring Car, 4-Passenger Sport Phaeton, 4-Passenger Roadster, Convertible Sedan
The Six Sedan $2820, The Twelve Sedan $3420. Open Car Prices—The Six $1995, The Twelve $2595

Government's War Revenue Tax Extra Charge



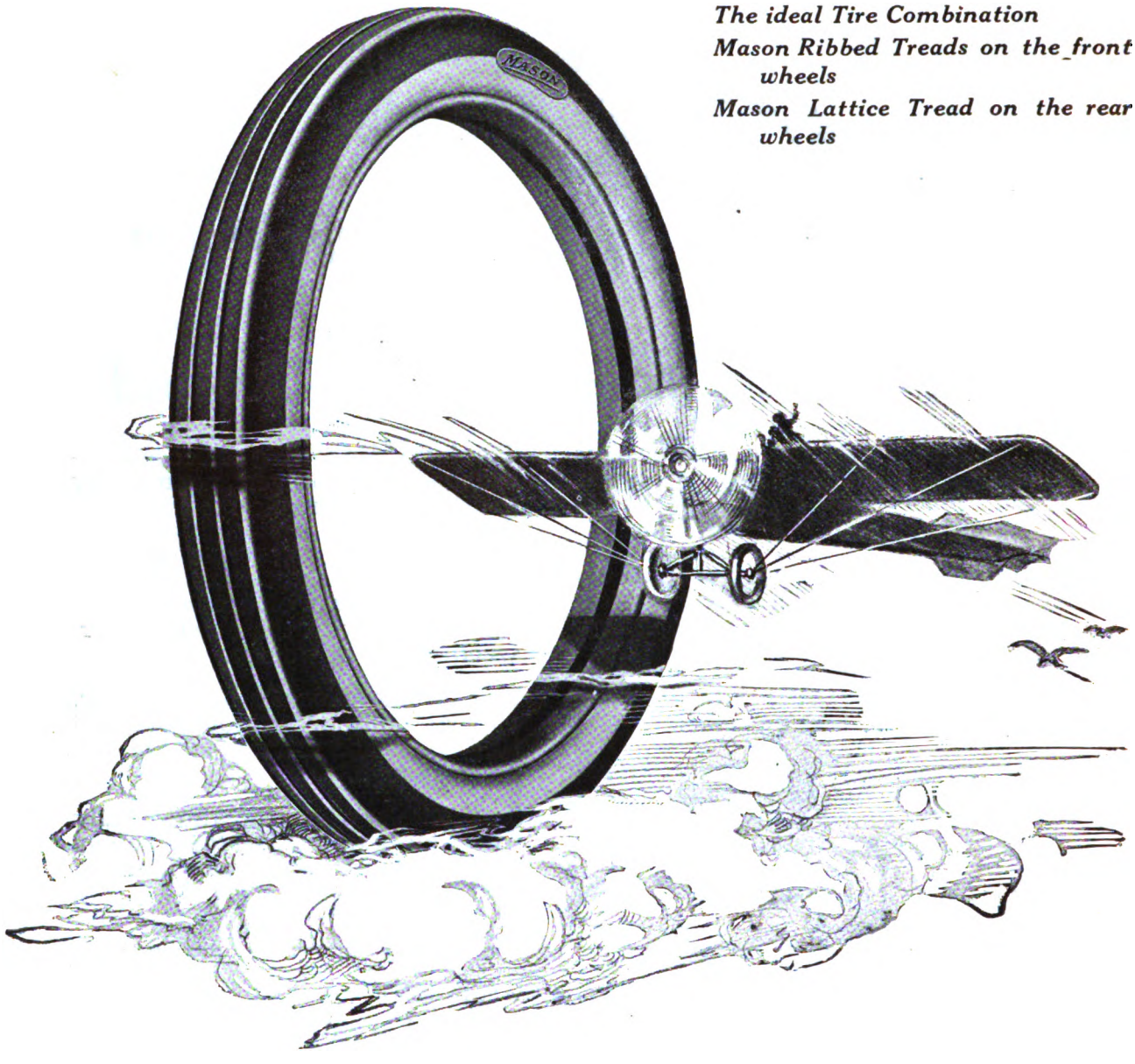
NATIONAL MOTOR CAR & VEHICLE CORPORATION - INDIANAPOLIS

Seventeenth Successful Year

When writing advertisers please mention Motor World—it identifies you

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The ideal Tire Combination
Mason Ribbed Treads on the front wheels
Mason Lattice Tread on the rear wheels



Speeding to the Fore

The "quality tire at a popular price" idea has succeeded. More and more, owners are finding that Mason really means more mileage at lower costs.

The reason is simple—just a matter of flawless design, superior materials and skilled workmanship. Equip your car with Masons—the speedometer will prove that

Progressive dealers find the Mason plan mighty profitable. A line to the factory will bring all the details

MASON TIRE & RUBBER CO.
Factory: Kent, Ohio
Akron Suburb

MASON MEANS MORE MILEAGE

DISTRIBUTING BRANCHES:

Cleveland	Chicago	New York	Kansas City	Buffalo	Atlanta	Akron
1806 Euclid Ave.	2120 Michigan Ave.	28 W. 63d St.	1732 Grand Ave.	834 Main St.	21 Houston St.	34 W. Market St.

When writing advertisers please mention Motor World—it identifies you

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Why "Dope" Your Radiator to Choke a Leak

When You Can Repair It Scientifically?

It is a fact that the car owner feels most *helpless* when his radiator leaks.

He *can* drug his radiator with cements, meals or powders—but no *careful* motorist does this. He knows that soldering is expensive—and that the high heat of the soldering iron frequently ruins the radiator. Up to now he has preferred to take this chance—and pay big repair bills—rather than clog the entire cooling system with "dopes."

Thinking motorists have *always* wanted a product that would repair leaks *scientifically, economically,* and *permanently. And they have instantly grasped the significance of this new chemical discovery*—"X" Radiator Liquid. Last year they purchased over 500,000 cans of it!

Repairs Leaks Without Metal or Fire!

"X" Radiator Liquid is a *scientifically correct process* of repairing leaks in the radiator, pump, waterjacket, motor head gasket, etc.

You simply pour "X" into the radiator. It instantly combines with the water and circulates freely through the cooling system.

Whenever "X," in solution with the water, finds a leak, it flows through. The oxygen in the air immediately changes the "X" into a solid, making a *permanent repair* capable of resisting *over quarter of a ton pressure.*

"X" Radiator Liquid requires no bother, no tinkering—no fuss—nothing to take apart. "X" repairs any leak in *ten minutes*!

A Rust-free, Scale-free Cooling System

When "X" has sealed a leak the surplus remains in the water. This neutralizes the corrosive elements and prevents rust. It also prevents scale—keeps the water passage free and clear and *improves cooling.*

"X" Liquid is the *only* product for repairing leaks in the cooling system that has the recommendation of radiator makers and automobile engineers. It is used by the General Electric Company, American Telegraph and Telephone Company, Standard Oil Company, etc., etc.

Don't confuse "X" with so-called compounds, cements, powders, etc. "X" *is a pure liquid.* It will not gum or clog the cooling system.

Be careful what you put into your radiator. Imitations are dangerous! Ask your dealer for the genuine "X" Radiator Liquid. If he hasn't yet stocked we'll ship direct if you give us his name.

LARGE SIZE, $1.50, will do a $25 repair job!
FORD SIZE, 75c, will do a $15 repair job!

Dealers! "X" Liquid Helps Your Winter Business

"X" Liquid works in any anti-freeze solution and can be sold *all winter.* Keep "X" in stock—display it prominently. Every motorist needs "X." It is a preventive as well as a cure.

Get Our Extra Profit Assortment

Here's a profit-maker. Nineteen cans of "X"—twelve 75c cans and six $1.50 cans. We give you one $1.50 can FREE. Costs you $12. Sells for $19.50. We include a handsome mahogany display stand, selling literature, posters, etc. *"X" is to be nationally advertised.*

Ask your jobber for our assortment. Or we will ship direct through your jobber. Use a postal card or the coupon below.

"X" LABORATORIES, 630 Washington Street, BOSTON, MASS.

"X" RADIATOR LIQUID



"X" Laboratories, Boston, Mass.

Gentlemen:
Please ship me "X" Dealer's Assortment with $1.50 can—FREE.

.....

My jobber's name is

.....

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LIST

CREW LEVICK

REG. U.S. PAT. OFF.

MOTOR SPECIALTIES IN YOUR CATALOG

ONE of the most successful lines of motoring **needs** is the family of Crew Levick Specialties.

Each appeals to every motorist at some time during the year—over four million prospects in line for one or all of the Crew Levick Specialties every day.

The list prices are interesting prices, the values are good, and provide liberal profits to the dealer. Excellent co-operation is provided throughout the year.

Catalog the Crew Levick Specialties for 1918. The cuts illustrated are supplied in standard catalog sizes Send for them, today, now. Then clip this page and hand it to your printer.

The Crew Levick line, all one family, is worthy of a prominent location in every worth-while dealer's and jobber's catalog.

Send for cuts today.

CREW LEVICK COMPANY
105 N. Broad St., Philadelphia, Pa.

Crew Levick Motor Oils & Greases

Crew Levick Motor Oils and Greases are made by one of the oldest concerns in the industry. Refined from highest-priced base of Pure Pennsylvania Crude.

Because of their superior qualities, engines, etc. lubricated with Crew Levick Oils and Greases wear longer and are more efficient.

Sold in 1-gallon, 5-gallon cans, also half-barrels and barrels. Grades for every engine and purpose.



Crew Levick Grease-in-Tubes

Grease-in-Tubes is the convenient and economical way to use grease. In tube form, quality lubricants are put exactly where needed. without soiling clothes or hands. Grease is kept always fresh and clean; can't dry up. Grease-in-Tubes is a decided economy.

Four kinds of kits—three big tubes in kit, 13 oz. per tube. Lincoln Highway Kit—three tubes—Gear Compound, Cup Grease and Spring Grease $1.00

Kit of three tubes any one grease $1.00



Crew Levick Victor Heater

A fresh air heater for all Ford touring, sedan and town cars. When turned on brings flow of warm, pure air into the car. Can be closed off entirely, or adjusted for desired amount of heat while riding. Heats in half minute. Needs no fuel or attention. Attaches direct to exhaust pipe. Fits in floor boards. Easy to install.

Price, complete, $5.00



Crew Levick Tire Seal

Tire Seal automatically seals punctures, by filling in space around a nail, etc., or by automatically plugging holes left by punc-turing. Preserves rubber

A pint in each tube keeps tires always air-tight. Stops punctures from stopping you.

Tested; proved O.K. by The A. C. of A. and backed by one of the oldest organizations in the oil industry.

Packed in single tube cans, $1.50, $2.00, $2.50 according to tire size.



Crew Levick Fractors



Fractors are light-controlling prisms of glass, formed into little cups that fit under the bulb and definitely control light at its source. Front glasses remain unchanged.

Fractors are not a makeshift. By scientific use of prisms, your lamps are made to give lawful and very efficient light. Passed by the officials of strictest states: tested by A. C. of A.

Per pair—one size for all cars $2.75

Crew Levick Mistokleen

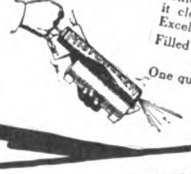


Mistokleen is a high-grade, scientifically blended product, for preserving and polishing varnished surfaces.

It softens and makes it easier to remove road oil, tar and grease from automobile bodies. A quick, convenient way to clean up the car; keeps it clean, bright and new looking. Excellent furniture polish.

Filled sprayer, ready for use with two Mistokloths $1.25

One quart can refiller $1.00



Crew Levick Mistokloths

Mistokloths are clean, ready cut handy "rags." Open weave and specially woven—like cheese cloth. Will not mar most delicate surface. Excellent for polishing car and also furniture. Handy to carry in car, where a clean Kloth is necessary.

Package of 12 Kloths .50c.

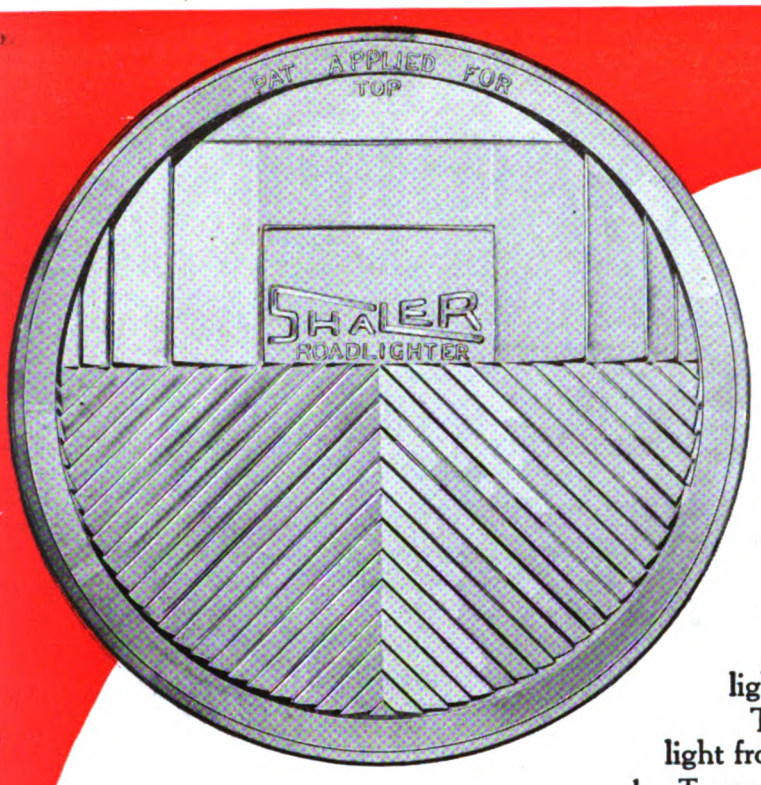
Small package, 6 Kloths 25c.



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Front View of the SHALER Roadlighter

Makes Night Driving Safe

The SHALER Roadlighter is not a dimmer—it is a lighter—yet it conforms to all no-glare laws.

The country is flooded with lenses of all kinds and descriptions. You know that most of them are merely made to sell. They simply diffuse the light so as to get by the law.

That is all right for the fellow in the other car. But how about you?

It simply means that the efficiency of the lights on your car has been lessened.

The motoring public has been waiting for a headlight front that performs two distinct functions:

1.—To prevent a glare from the lights on your own car.

2.—To get a *strong* driving light—so strong that no matter how intense the glare of the approaching car you will not be blinded, but can see the edge of the road clearly and pass safely without slowing down.

SHALER

It Shoots the Light Far Ahead

The prisms take the light which with an ordinary lens is spread and wasted along the sides of the road too far ahead of the car to be of any practical value and bend it, concentrating it as extra light on the road-bed.

Result: At a distance of say 200 feet ahead of the car the light on the road is approximately twice the intensity of that from a bulb of the same candle power projected through a clear glass headlight.

Pierces the Glare of Approaching Headlights

The light is so intense that it will pierce the glare from an approaching car and give a clear view of the side of the road when passing. This exclusive feature of the SHALER Roadlighter is of prime importance.

The light which ordinarily shoots up into the air and is lost is bent down and toward both sides by the inner portion of the diagonal prisms so that the most concentrated part of the light is converted into an intense beam effect along the sides of the road, such as could only be obtained by using a spot-light on each side of the car. This highly intensified light counteracts the glare from an approaching headlight and enables one to keep a clear view of the edge of the road and pass in perfect safety without slowing down.

Rays Penetrate Fog and Dust

With any lens which permits the light to come above the level of the headlight, the rays strike the fog or dust particles and form a curtain of back-glare between the driver's eyes and the road. With the SHALER Roadlighter all the light is held down below the level of the headlight, doing away with the back-glare so that the driver is enabled to see ahead to the full length of the rays. Discoloring the glass and thereby dimming the light for driving under ordinary conditions is eliminated by the efficient design.

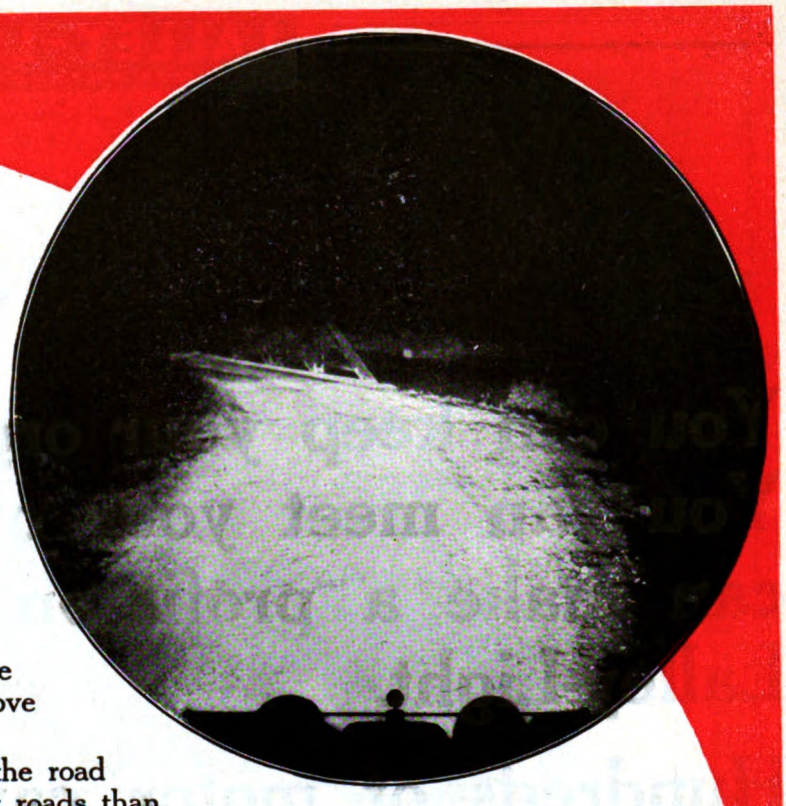
Tested—Proved—Guaranteed

The reports of our own experts—the official tests made in various cities and states—the photometer and illuminometer tests made by Mr. F. A. Vaughn, Chairman of the Headlight Committee of the Society of Illuminating Engineers, have demonstrated beyond the shadow of a doubt that the SHALER Roadlighter is infinitely superior in every way, and that it is the only lens that makes night driving as safe as by daylight. *Every SHALER Roadlighter is sold under a positive guarantee of absolute satisfaction.*

C. A. Shaler Co.
Waupun,

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Lights The Whole Road



Unretouched Midnight Photograph

You can now drive at night—with just as much safety—and just as fast as in daytime—without the delay and danger of slowing down and dimming your lights to allow another car to pass.

The new SHALER Roadlighter lights the entire road, from fence to fence, with a bright, white, evenly distributed light.

It has no glare—absolutely none—and the light beams are never more than 42 inches above the ground—at any distance from your car.

All of the light is evenly distributed on the road where you need it, giving brighter, safer night roads than you have ever seen before. It is approved by city, state and police officials everywhere and endorsed by leading accident insurance companies.

ROADLIGHTER

It Illuminates the Ditches

The outer portion of diagonal prisms bends some of the light down and toward both sides, giving a wide-spreading fan of light that illuminates the ditches clear to the fences.

It Is Easy to Keep Clean

The outer surface of the SHALER Roadlighter is perfectly smooth. There are no projections whatsoever on the outside to catch and hold snow, rain or dirt.

It Is Easy to Install

Since the outer surface of the SHALER Roadlighter is perfectly smooth, there are no projections against the rim of the headlight door to prevent proper seating. Therefore it is not necessary to know the diameter of the opening in the face of the lamp door.

Accurate Focusing Unnecessary

The prisms, which are at different angles with the smooth surface of the SHALER Roadlighter, deflect the rays so that there are no dark spots even if the bulb is not exactly focused.

It Is Legal Everywhere

The rays passing through the upper half of the lens are projected below the horizontal by the reflector itself and hence none of them are more than 42" above the surface of the road. The rays passing through the lower half of the lens are bent down below the horizontal by the diagonal prisms and hence are not projected more than 42" above the surface of the road—thus no light is wasted in glare and the SHALER Roadlighter complies with all no-glare ordinances.

Regular retail prices of the SHALER Roadlighter are $2.75 per pair for Ford size and smaller; $3.50 for larger sizes. Packed ten in a carton.

Limited Offer to Dealers Only

We want every automobile accessory dealer in the United States to try out a pair of SHALER Roadlighters on his own car—AT OUR EXPENSE.

Mail the coupon for full particulars regarding this big offer There is no obligation—don't put it off—clip and mail coupon *now*.

9400 Fourth St.
Wisconsin

Dealers' Offer Coupon

C. A. SHALER CO., 9400 Fourth St., Waupun, Wis.

Gentlemen: Send me full particulars about your offer to let dealers try out a pair of SHALER Roadlighters at your expense. This obligates me in no way.

Name .....

Address .....

City and State .....

My Jobber's Name Is .....

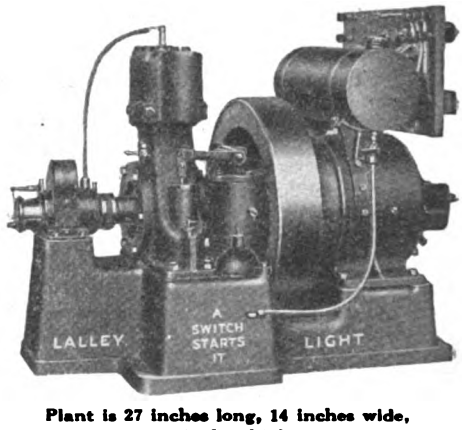
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LALLEY-LIGHT
THE BALL-BEARING ELECTRIC LIGHT PLANT

You can keep your organization whole—You can meet your overhead—yes, you can make a profit on top of both, with Lalley-Light.

Hundreds of motor car dealers and distributors will be in better shape next Spring because they had a Lalley-Light franchise this winter.

Lalley Electro-Lighting Corporation, 1826 Mt. Elliott Ave., Detroit, Mich.

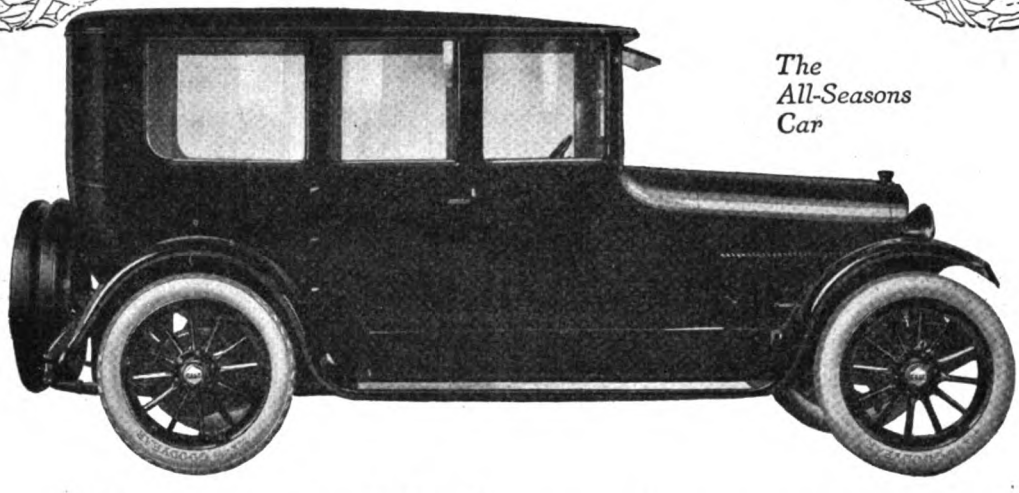


Plant is 27 inches long, 14 inches wide, 21 inches high.

LALLEY-LIGHT
ELECTRIC LIGHT AND POWER FOR EVERY FARM

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CASE SIX



The All-Seasons Car

Greater Values Apparent

No man can see the New Case Six without appraising its price at more than we ask . . . especially if he reads the specifications, examines the car, rides in it, drives it.

ITS beauty and mechanical excellences are rarely attained for $1875. Certainly not in these days!

No car near this price has so many proven features, such inbuilt dependability.

Buyers and dealers alike have appreciated quickly this opportunity. "It is just like Case," they say, "to give more for the money than one anticipates."

Dealers are glad to offer this all-feature car—because it satisfies every want, every requirement. Its worth is not measured by merely a few major attractions.

As the current production of this New Case Six is limited—and the demand is brisk, we suggest to dealers who are attracted, that they communicate with us at once.

To a few dealers who command a clientele of motor-wise buyers, we have an attractive proposition to offer.

Would you like to go into it? Then write today.

Family Touring car for 7 or 5 people, color dark blue, $1875; Sport Model for four people, color periscope green, $1875; All-Seasons Model, Springfield Type, for 7 or 5 people, color dark blue, $2375.

J·I·CASE T·M·CO·INC·

FOUNDED 1842

196 LIBERTY STREET

RACINE, WIS·

The New Case Six, in three models, will be exhibited at the New York and Chicago Shows

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JOHNSON'S FREEZE-PROOF

THE only way a motorist can be positively sure that his radiator won't freeze up is to use a non-evaporating anti-freeze preparation. You can never be sure of Alcohol or any other product which evaporates with the water. Besides this, the price of Alcohol makes it practically prohibitive for the coming winter.

Does Not Evaporate or Steam

Johnson's Freeze-Proof does not evaporate with water. One application is sufficient for the whole winter unless the solution is weakened by leakage of the radiator or hose connections—through the overflow pipe—or by boiling over.

Economical and Easy to Use

Johnson's Freeze-Proof is the most economical anti-freeze compound on the market. It is very easy to use—simply dissolve in water and pour into the radiator. One package is sufficient to protect a Ford to 5° below zero; for larger cars use two packages to protect to 5° below zero, and three packages to protect to 20° below zero.



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PREVENTS FROZEN RADIATORS

Absolutely Harmless

Johnson's Freeze-Proof does not injure rubber, cloth, packing or metal of any kind. It does not rust or corrode metal. There is less rust with Johnson's Freeze-Proof than there is with water alone or with a combination of water and alcohol.

Extensively Advertised

Johnson's Freeze-Proof is being very extensively advertised in the motor papers, magazines and weeklies. Its many advantages will make it the standard anti-freeze preparation for the coming winter. Your stock will not be complete without Johnson's Freeze-Proof. It is readily procurable as practically all jobbers have it in stock.

Johnson's Freeze-Proof is put up in packages containing 6½ lbs. net which retail at $1.50 each in U. S. A. Liberal discounts to Dealers.

For further information write

S. C. JOHNSON & SON, Dept. MW, Racine, Wis.



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Are You Making Money?

—or losing it?
—just how much are you ahead or behind?
—what part of your stock or shop is making and what part losing?
—and why?

Motor World's Simplified System of Accounting

—will answer all these questions. It will tell you exactly where you stand *at any time*, where your profit and loss take place.

It is the CHEAPEST, SIMPLEST AND SUREST METHOD of finding and stopping losses; of checking up purchases, sales and stock on hand.

You don't have to be a bookkeeper—the

Complete Instruction Book Shows You Exactly How to Use It

You can start and run it yourself, or *any man* in your garage or shop can do it. SENT ON 5-DAY APPROVAL. Get it. Look it over. If you are not satisfied with it, send it back and your money will be refunded. DON'T LET ANOTHER DAY PASS WITHOUT IT. Saves its cost—$15—the first month you use it.



Use the Coupon Now

OVER 1500 GARAGE, REPAIR AND SUPPLY MEN USING IT NOW

TALLMAN, ROBBINS & CO.

Exclusive authorized manufacturers of Motor World Simplified System of Accounting

314 W. Superior St., Chicago
320 Broadway, New York

TALLMAN, ROBBINS & CO.
314 West Superior St., Chicago.

Dear Sirs:
Ship me complete "Motor World Simplified System of Accounting" with Book of Instructions. I enclose $15, in full payment with understanding the same will be refunded if I am not satisfied and return the System within 5 days.

Name .....

Street and Number.....

City and State.....

12-12-17

YES

It is quite a question just where to put your finger on the Machine Shop that can handle the job—*quickly*.

BUT

our CONTRACT WORK DEPARTMENT will give the answer.

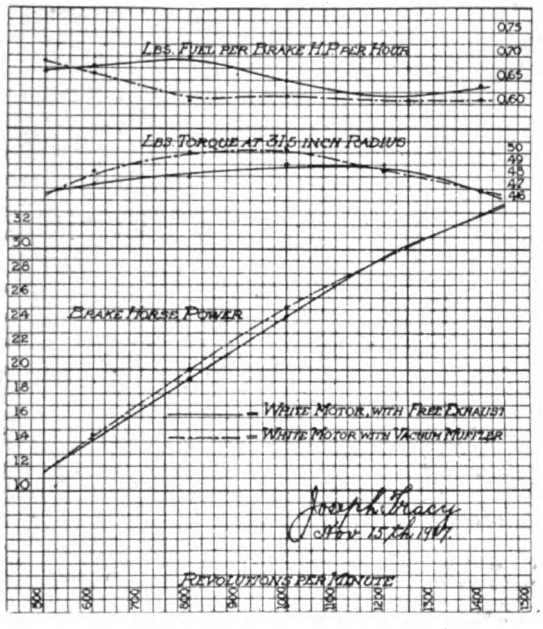
Refer to page 149 this week's Number.

Contract Work Dept.
MOTOR WORLD

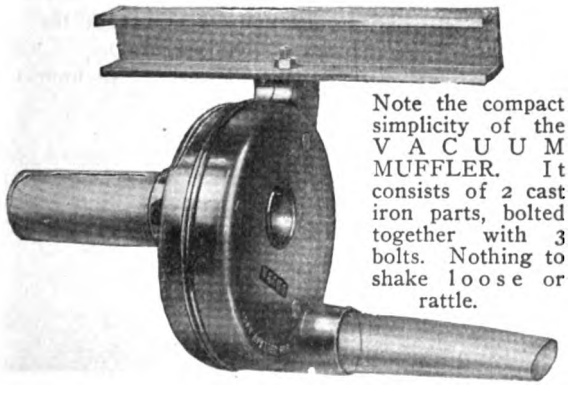
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WAKE UP ON THE MUFFLER QUESTION!

A Remarkable Test



Mr. Joseph Tracy, the well-known automotive engineer, found by thorough tests under carefully prepared conditions, that the *VACUUM MUFFLER allowed an engine to develop more power with less fuel consumption than the same engine developed with a free exhaust!*



Note the compact simplicity of the VACUUM MUFFLER. It consists of 2 cast iron parts, bolted together with 3 bolts. Nothing to shake loose or rattle.

Face the Facts!

You probably don't realize how much better your motor would run with a good muffler because you've *never had one!* You don't realize how a poor muffler eats up power, retards your "pick up," chokes your motor, fills with carbon, shakes loose and rattles.

It has been the general policy to *step on the soft pedal when speaking of mufflers.* City ordinances prohibit the use of cut-outs, so the idea that mufflers do not hamper the engine has been allowed to spread, on the principle that "what cannot be cured must be endured."

The real *fact* is that

Until Recently No Adequate Muffler Had Been Invented

Every muffler on the market was more or less inefficient, absorbing engine power, preventing full flexibility, accumulating carbon, increasing gasoline consumption.

So long as such conditions were practically universal there was nothing to be gained by dwelling upon them.

But

These Conditions No Longer Exist

The VACUUM MUFFLER has proved—both by scientific laboratory tests and in actual service on the road—that it actually *adds* to the power and flexibility of the engine, reduces gasoline consumption, keeps clean of carbon, and is proof against explosions and blow-outs.

A thorough test by Joseph Tracy, the well-known automotive engineer, actually developed the fact that

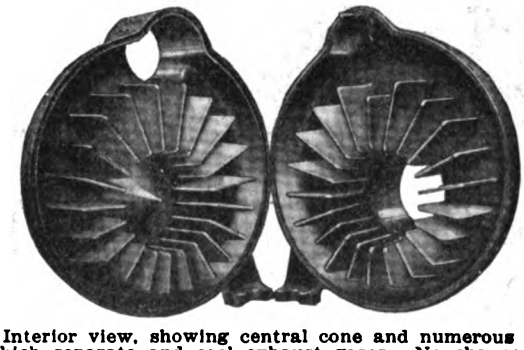
An Explosion Engine Will Run Better With the Vacuum Muffler Attached Than With a Free Exhaust

Write for copy of this report and letters from car owners telling what the VACUUM MUFFLER has done for their cars in actual service.

A splendid proposition for Dealers.
Write at once for full particulars.

The Vacuum Muffler Corporation

154 Nassau Street, New York City



Interior view, showing central cone and numerous fins which separate and cool exhaust gases. No chance for carbon to gather, or for gases to explode. No back pressure to reduce engine power and flexibility.

GUARANTEED AGAINST BLOW-OUTS!

The Vacuum Muffler

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The Chilled Rubber Process



THE "CHILLED RUBBER PROCESS" OF TREATING CRUDE RUBBER is a natural development, based on long experience in tire making. Its basic principles have been developed and its technique perfected, in the large, thoroughly equipped Laboratories which now form the central portion of the Gillette Factories at Eau Claire, Wisconsin.

THIS PROCESS TOUGHENS THE RUBBER, giving it a tenacity and wear-resistance peculiarly adapted to tire purposes. It has enabled the Gillette Company to produce a tire that, while in all other respects equal to other tires of the highest grade, is distinctly their superior in its ability to withstand wear and tear.

THE GILLETTE SAFETY TIRE is easily the King of Fabric Tires. THE GILLETTE CORD TIRE combines all the advantages of cord construction with the unusual qualities of the "Chilled Rubber Process." No finer tire is obtainable.

Safety

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Gillette

Extraordinary Wearing Ability

The remarkable performance of Gillette Safety Tires, made possible by the "Chilled Rubber Process," of manufacture, has won for these tires the firm faith of motorists who have had the personal experience of their wonderful resistance to wear and tear.

There are thousands of Gillette Safety Tires now in service, and the distance records made by them are the strongest evidence of their remarkable character.

Here is a tire that will always outlast the mileage warrant; a tire whose mileage guarantee is delivered on the roads, in actual service; a light, smooth-running, perfectly balanced tire, with an **extraordinary quality of rubber** that assures it much longer life.

The Gillette Dealer Has These Big Advantages

He has a tire that is absolutely unrivaled. You can prove that statement under your own tests.

He has behind him a specially trained and thoroughly modern selling force, assuring him a wide distribution throughout his own territory.

He holds a definite place in the Gillette organization, receiving the same quality of service and attention as though his establishment were a branch office of the company.

His business is his own, and no matter how large and prosperous it becomes he will still hold the Gillette agency. We help him build it, and hold it, and it is not our policy to establish branches to compete with him.

We should be glad to send full particulars to good, responsible dealers who desire to hook up with the biggest tire proposition for 1918.

THE GILLETTE RUBBER COMPANY

Chicago Office
122 Michigan Ave.

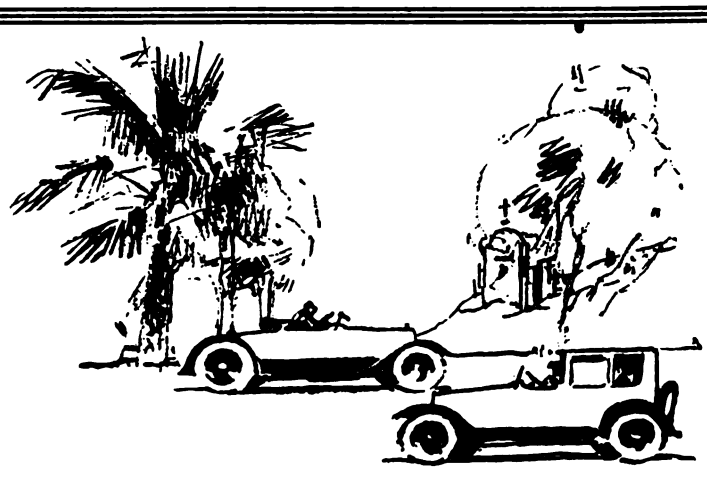
General Sales Office
1824 Broadway, New York

Factories
Eau Claire, Wis.

Tires

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Hundreds of Thousands of New Buyers—

Whatever effect the war may have had on the domestic market for automobile products, it is evident that it has opened a splendid new trade channel in Latin America. This trade has been shut off from its accustomed source of supply—Europe—and the United States now remains its sole reliance.

A MARKET OF UNRIVALLED PROMISE

Think of five thousand dealers, jobbers and garagemen—supplying hundreds of thousands of users—*suddenly left without a place to buy.* Such was the status of Latin America when the war stopped all shipments from Europe. Now they have turned to YOU with an earnest appeal to supply their wants. They need every description of automobile products; and, owing to the time consumed in transportation, they carry *large stocks.*

The Demand Is Growing

Two circumstances—hot climate and poor horses—have combined to create a great popular demand for automobiles, trucks and tractors in South and Central America, Cuba and the West Indies. Thousands of plantations, hundreds of prosperous commercial centers, and countless thousands of individual pleasure seekers, drawn to the open by perpetual warm weather and unparalleled scenic beauties, have given the automobile a tremendous vogue in this great outdoorland.

This Trade Is Permanent

This opportunity, suddenly thrust on the American automotive industry should be seized and *capitalized.* It is not transient, but *permanent;* for your Latin American connections, once established, can never be wrested from you. You will find your trade enthusiastic and loyal.

How to Get and Hold This Business

You must tell your story to the Latin American trade *through its own trade medium*—EL AUTOMOVIL AMERICANO. Faced with the necessity of switching their purchasing to the United States, these buyers had to have a competent and trustworthy source of information concerning our industrial activities. EL AUTOMOVIL AMERICANO is their sole official organ — the only automobile publication going from the United States to Latin America. It is printed in their own language—Spanish —is properly illustrated with photographs and drawings, gives all facts of interest about cars, trucks, tractors, parts, accessories, roads, tours, etc., and contains special articles on the proper care and maintenance of automobiles, and practical hints on shop practice.

Big Buying Season Now

EL AUTOMOVIL AMERICANO is published quarterly. The forthcoming issue—January—reaches the trade when its heaviest buying is being done. January is *midsummer* in Latin America. Your advertising in this issue will find these buyers in their most responsive mood, feeling the weight of a demand which they are hard pressed to meet. It is a splendid time to establish connections looking to the future, even if you are not prepared to handle foreign business at the present time.

Personal Service to Advertisers

Our Service Department, trained in the ways of Latin American buyers, will prepare and translate your advertisements without charge. Art work and engravings are furnished at actual cost. The service also includes the translation of inquiries and correspondence resulting from your advertising.

Still Time to Reserve Space

Prompt action will insure your representation in this issue. Orders for space must be in our hands by December 24th at the latest. If we are to prepare copy for your advertisements, the order should reach us before December 18th.
Write or wire at once for rate card and particulars. You cannot afford to miss this big January trade.

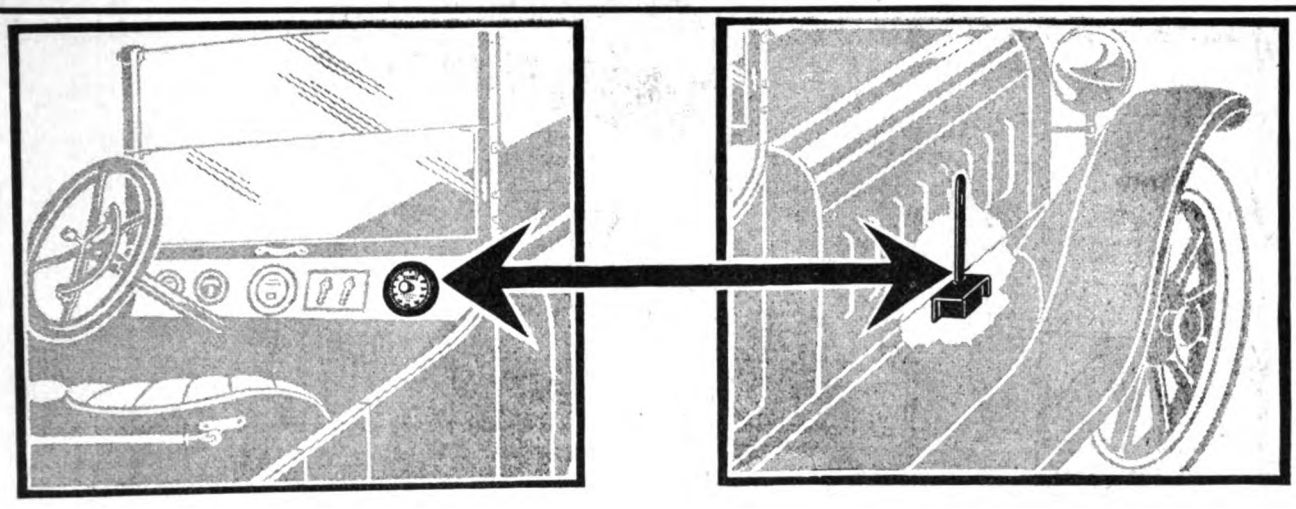
El Automóvil Americano

Automóviles · Camiones · Moto-Cicletas · Aeroplanos · Tractores

Is Published by

The CLASS JOURNAL COMPANY, 239 West 39th St., New York

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LOXIT
COMBINATION HOOD and IGNITION LOCK

Two Locks in One That Make the Car *Your Own*

Loxit is an electrically controlled lock that cuts the ignition and locks the hood at one operation. It works exactly like a safe combination.

With Loxit your car actually becomes **your own.** No one can tamper with it—not even another Loxit owner. Each Loxit has its own, individual combination, as easy to remember as a 'phone number. No key to lose or forget, no lock to pick, no chance of theft.

Loxit gives positive security, lessens insurance, violates no state or city ordinance and leaves wheels free.

Sells for only **$12**

Dealers—Think What Loxit Means to You

Loxit is an all-year seller; thousands of motorists are finding Loxit indispensable. You'll find it an incomparable profit bringer—a business-building asset. See your jobber today.

Some territory still open for sectional distributors. Distributing Territory also open for other fast-selling accessories.

NATIONAL DISTRIBUTING BUREAU, INC.

Exclusive Distributors for the U. S. A.

240 Oliver Building Pittsburgh, Pa.

Loxit is Manufactured by the American Auto Lock Co., Pittsburgh, Pa.

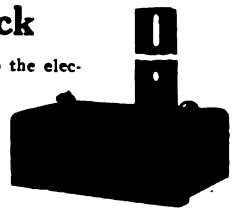


The Dial of Loxit

All you see of Loxit is a dial on the dash. You set the combination and your car is secure—as safe as if the engine itself were removed.

Hood Lock

The rod slips into the electro-magnetic lock at the turn of the hand on the dial. The lock on each side of the hood is concealed.



MAIL TODAY

NATIONAL DISTRIBUTING BUREAU, INC
240 Oliver Bldg., Pittsburgh, Pa.

Jobbers—If you want further particulars, check here ..... ☐

Dealers—If your jobber doesn't handle it, check here ..... ☐

Name .....

Address .....

.....

.....

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GETTING ACQUAINTED WITH AMAZON

PROPOSITION - TERRITORY

The Amazon proposition to Jobbers and Dealers carries *Exclusive Selling Rights.*

This makes it worth while to push the Tire and build up a permanent trade. It means no competition—which in turn means no price cutting; and this means your legitimate margin of profit on every sale.

It gives your business a distinctiveness, and distinction—to be *the* Amazon Dealer. Your competitor across the street cannot handle them—only you can cash in on the demand for Amazon Supertires.



Would you like to know more about territory, and the other details of our proposition?

(Fourth Ad of a Series)

THE AMAZON RUBBER COMPANY

AKRON, OHIO



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A Winter Business Booster



THE ROEDDING SIGNAL TAIL LIGHT

Here is a rear signal that any dealer can back with his personal reputation. It is made *right* all the way through. Extremely simple. No come backs. No service troubles or replacements to bother with.

It will prove one of the fastest selling and most profitable accessories ever placed on the market. Men in the trade who know predict that automatic signals will soon become as universally used on motor cars as starting and lighting systems.

The Roedding Signal Tail Light sells easily; particularly during the closed car winter season when it is practically impossible without it to signal the driver behind.

Sliding the control plate button fastened to the steering wheel or side door a quarter of an inch signals STOP, BACK, LEFT, RIGHT, as you wish. Signal returns to neutral automatically, showing a clear red light at night.

Big plain two-inch letters white by day and illuminated at night, visible a block away. A front signal is also included at a small extra cost if you wish it.

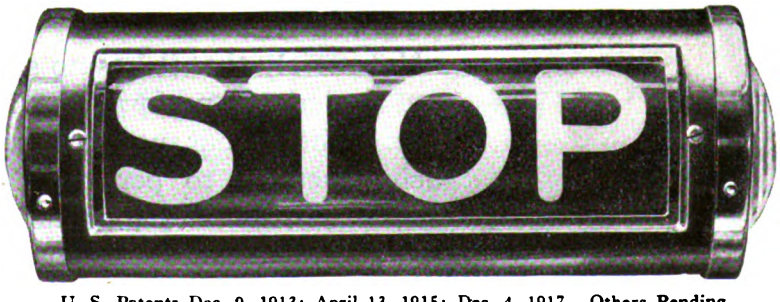
Press the control button and your horn sounds: Horn and signal may be operated together or independently.

There can be no confusion. Mistakes are impossible. Only one control button to operate. A finger touch does the work.

Mechanically it is a marvel of simplicity and durability. A simple solenoid movement controls the signal. Only three moving parts. Fully guaranteed and will last the life of the car without repairs or adjustments.

Neat, compact, 10″ by 4″ in size. Weight 2 lbs. Amount of current used is inappreciable. Does not add weight or complications to the car.

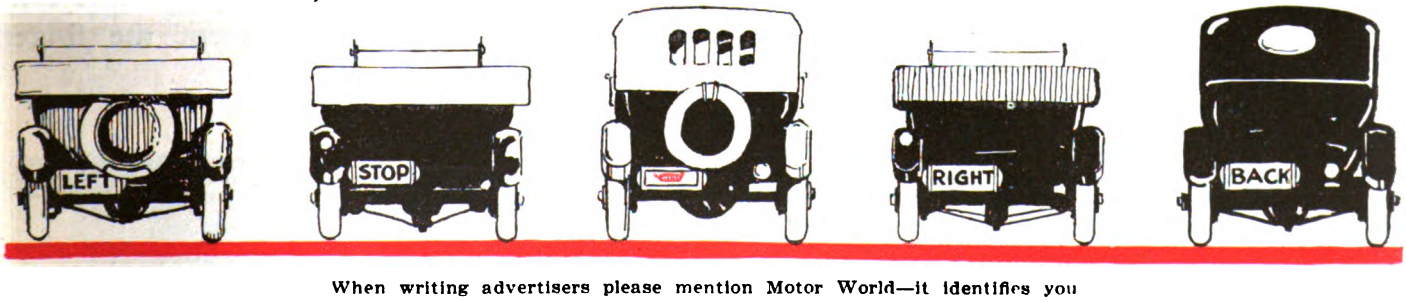
Write or wire for our Dealers or Agents Proposition.
You will find it liberal.
Exclusive territory given if you act at once.



U. S. Patents Dec. 9, 1913; April 13, 1915; Dec. 4, 1917. Others Pending. Patented in foreign countries.

Price Complete $18.00

K. G. BARKOOT, Sole Distributor
1010 Chamber of Commerce
DETROIT, MICH.



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STANLEY

STEAM 22nd year CAR



The Power That Moves the World

We Guarantee Something Vital— Not Merely Materials and Labor

We guarantee not merely that the Stanley has no carburetor troubles—but that it has no carburetor.

Not merely that it has no ignition troubles—but that it has no ignition system.

Not merely that it has no clutch troubles—but that it has no clutch.

Not merely that it has no gear-shift troubles—but that it has no gears to shift.

Not merely that it has no self-starter troubles—but that it has no self-starter; it naturally and actually starts itself with its own power, without the necessity of an extraneous contrivance.

Not merely that it has no substitute devices to perform the functions of these—but that there are no such functions to perform. The functions themselves are simply not a part of the Stanley, and could not conceivably be a part of the Stanley.

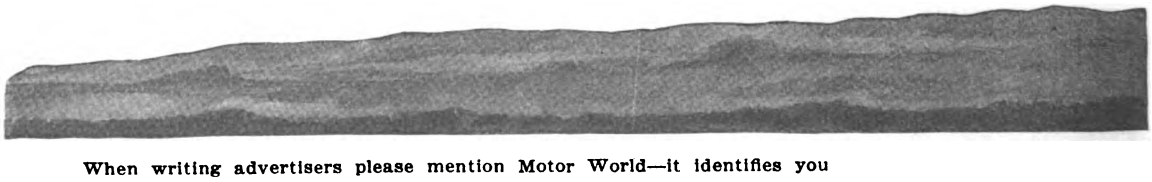
But Greater Than That

is the performance of the Stanley, whose liquid fuel (which is kerosene) is converted, not into mere instantaneously dissipated power, but into steam which is stored in advance.

The "pick-up" of the Stanley—its response in emergency and danger—does not wait for the power to be built up into a fly-wheel; the power is stored in advance, to be instantaneously delivered to the driving wheels—

and There Are No Gears to Shift!

Heretofore when you have come to emergencies—in city traffic, in rough going, at blind corners, on unexpected hills—you have always done what your car wanted you to do, because you have been limited to the power in the flywheel. With the performance of the Stanley at your command, the car does what you want it to do—precisely what you want, and precisely when you want it, and with not a single controlling device except the finger throttle.



Digitized by Google

You Want a Car With Stanley Performance

—that is why you are selling, or are thinking of selling a car with 6 or 8 or 12 cylinders and 3000 or more revolutions a minute, which means 18,000 or 36,000 piston revolutions a minute.

You and your customers have been led to believe that the only way you can get the performance you want is by multiplying the cylinders and increasing the flywheel speed.

The Stanley—with only 32 moving parts, only 2 cylinders, and only 900 to 1,350 piston revolutions a minute—will prove to you that this belief is erroneous.

As a matter of fact, haven't you ignored the Stanley, largely because it is unconventional, or because your neighbor does not have one, or because we have never brought it forcibly to your attention?

You Experienced Dealers

—you have sold automobiles of the very highest grade—you who realize that the limits of the internal explosive engine have been reached and do not even now yield your customers the performance they demand, and must have—we want you to know this Stanley performance, to realize that the ideals they have been longing for are here—now!

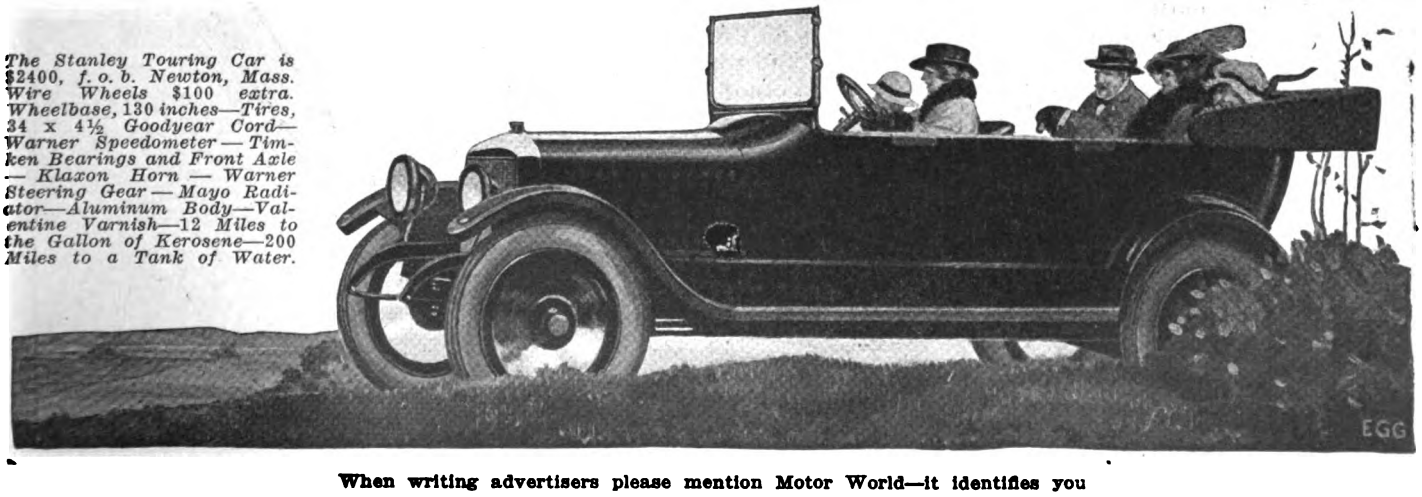
You can never appreciate what the Stanley means to an experienced motorist like yourself without personally driving the car.

You don't want to miss getting your customers exactly what they have been longing for, by overlooking the Stanley, do you? We shall be glad to hear from you, and to send our booklet.

STANLEY MOTOR CARRIAGE COMPANY

NEWTON, MASSACHUSETTS

The Stanley Touring Car is $2400, f. o. b. Newton, Mass. Wire Wheels $100 extra. Wheelbase, 130 inches—Tires, 34 x 4½ Goodyear Cord—Warner Speedometer—Timken Bearings and Front Axle—Klaxon Horn—Warner Steering Gear—Mayo Radiator—Aluminum Body—Valentine Varnish—12 Miles to the Gallon of Kerosene—200 Miles to a Tank of Water.



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"We have found that the 'Red Book' keeps us posted on the new things on the market—it enables us to keep our stock up-to-date—a most important factor."

Sidney W. Beech

Secretary and Treasurer
MOTOR CAR SUPPLY COMPANY

ONE OF THE INDUSTRY'S BIGGEST JOBBERS

THE AUTOMOBILE TRADE DIRECTORY
ROBERT WOLFERS, President
243 WEST 39TH STREET, NEW YORK CITY

"A Thousand Catalogs in One"

No matter how much reading a dealer does, he cannot keep informed of all the new things on the market. The use of the "Red Book" solves the problem. It lists accessories, machinery, shop equipment and hundreds of other items new on the market that a dealer should know of to keep his stock up-to-date. It is a complete guide of the industry.



"It Hangs Everywhere"

When writing advertisers please mention Motor World—it identifies you

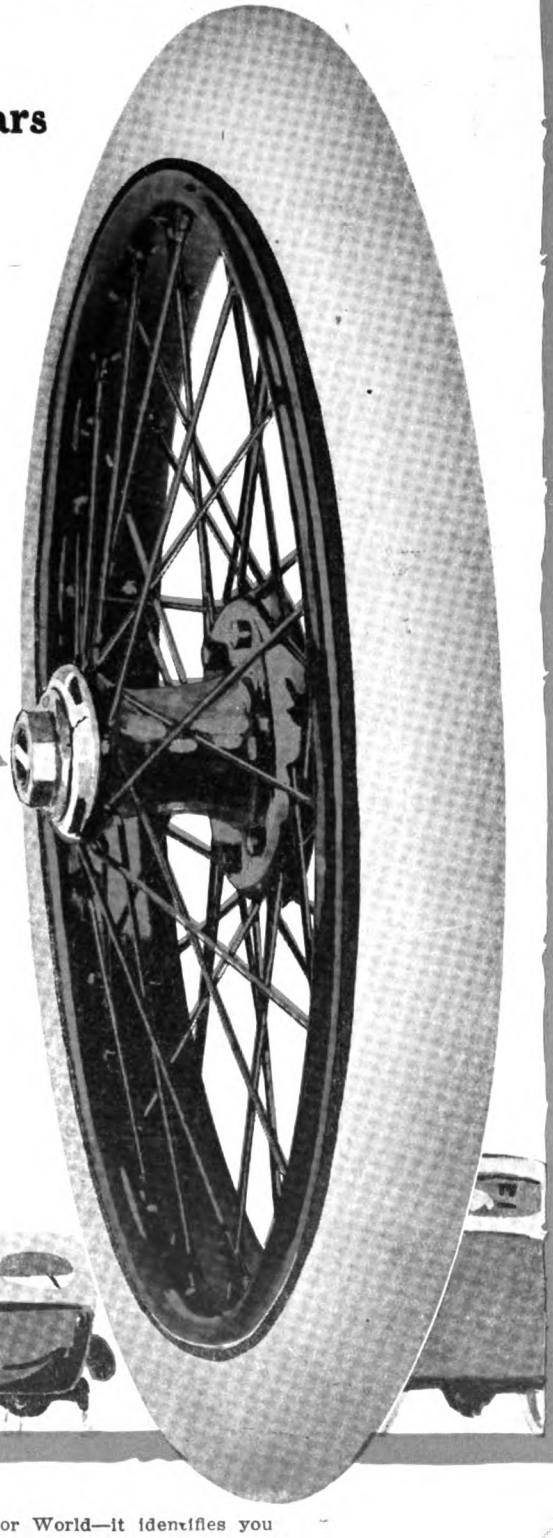
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DAYTON

QUICK DETACHABLE WIRE WHEELS

THE DAYTON WIRE WHEEL CO. - DAYTON, O. U.S.A. DAYTON QUICK DETACHABLE WHEELS

For Ford and Chevrolet Cars



ECONOMY

Dayton Wire Wheels are so designed, with just the proper number of triple laced spokes, that they offer a remarkable resiliency which insures 25% more tire mileage. This is without affecting the important feature of strength.

QUICK CHANGE

Five detachable and interchangeable wheels and four inner hubs make a set. To change a wheel simply unscrew and replace the hub cap. The spare wheel may be carried with tire inflated, ready for instant mounting. Furnished in any desired color. "Daytons" add the last touch of elegance to the Sedan or Coupelet for winter use. When a tire change becomes necessary in zero weather you will appreciate the quick change feature of Dayton Wire Wheels.

DEALERS AND JOBBERS

Dayton Wire Wheels insure more winter sales, more profits, more satisfied customers. Order today.

DELIVERIES NOW!

The Dayton Wire Wheel Co.
826 Miami Road DAYTON, OHIO



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Are *You* Helping Yourself—By Helping the Police?



Read that editorial—there's a lot of mighty wholesome wisdom in it.

It tells you what the police **cannot** do—it tells you what you **can do.** Also it tells you what you may expect if you don't heed its warning and equip your car with a Goodrich Steering Column Lock.

Automobile stealing is no longer confined to joy-riders—it's an industry.

Are you going to be an innocent party to that nefarious industry?

Be sure you read every word of that editorial. It's something for you to think about.

On the opposite page there's an illustration—something else for you to think about. Study that picture and later visualize yourself when your car is safeguarded with a Goodrich Steering Column Lock.

GOODRICH - LENHART MANUFACTURING CO.
418 Widener Building
PHILADELPHIA, PA.

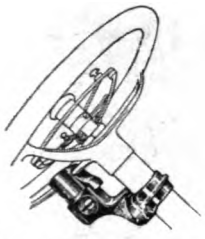
SOLD AND DEMANDED THE WORLD OVER

Goodrich
AUTOMOBILE PRODUCTS

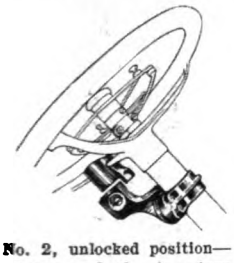
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Goodrich AUTOMOBILE PRODUCTS

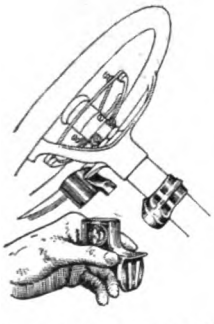
Steering Column Lock Passes All Fire Ordinances Everywhere—



No. 1, position when locked—holds wheel rigid



No. 2, unlocked position—allows wheel to turn freely



No. 3. This section easily removed when desired

This Yale-ed device, made in sizes for all makes of cars, baffles automobile crooks.

A single turn of the Yale key locks the steering column. Your car cannot be driven or towed, the front wheels being held fast in a straightforward position.

Insurance regulations for 1918—whereby the underwriters will not insure for only partial value of any car—will create a stupendous demand for a truly efficient lock, that entails no installation expense— here it is.

Installed in the time it takes to tighten four screws. No holes to bore. A patent clamping feature makes the lock an integral part of the steering column. Finely finished in black enamel. No leverage or cutting device can damage it.

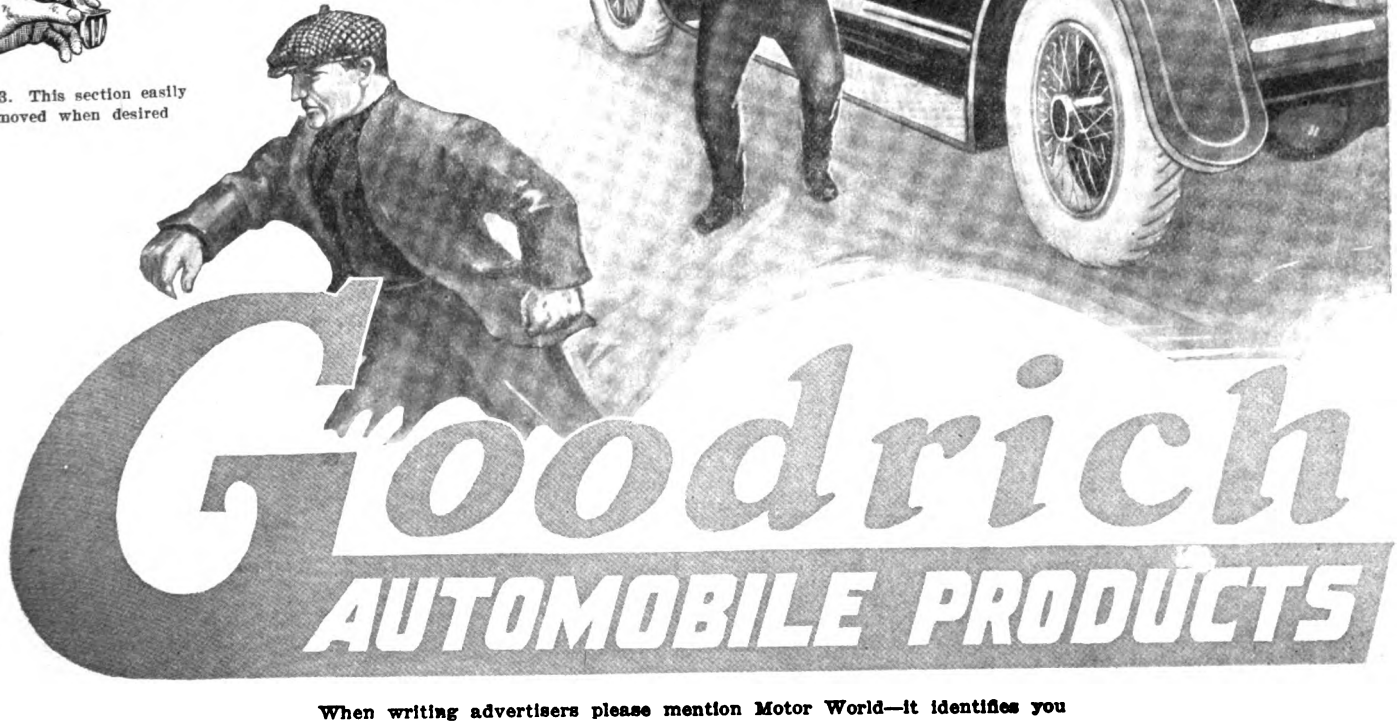
Screwheads, by which the lock is attached, are completely covered when the steering column is locked.

Easy to operate—impossible for it to get out of order.

Four sizes covers all makes of Cars and Trucks.

DEALERS, JOBBERS, secure catalog pages or electrotypes TODAY. This will be your single largest selling accessory during 1918.

GOODRICH - LENHART MANUFACTURING CO.
418 Widener Building
PHILADELPHIA, PA.



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At Your Service Every Day



This Gibson Catalog on your desk puts *Gibson Service* at your instant beck and call. Thumb through these pages daily for *all* your accessory needs. Absolute satisfaction, complete stocks, quick shipment.

THE GIBSON COMPANY

Indianapolis

Motor Car Accessories and Tires

Shop Equipment and Electrical Supplies

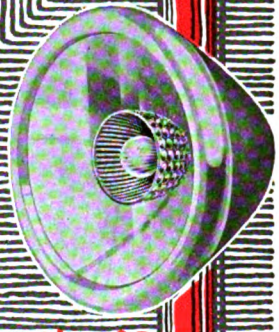
"Gibson Serves the World"

Digitized by Google

Stewart PRODUCTS



Stewart Speedometer $25



Stewart Lens $2 per pair

Progressive Dealers Know It Pays To Sell Leaders Only

Live dealers everywhere—men who do a big business and are making big money—know by experience that it pays to sell Leaders Only. They stock, sell and feature Stewart Products.

The dealer who has achieved really big success does not waste his time, energy and money in trying to "put across" unknown accessories. He knows that cheap accessories are a speculation, pure and simple, both for him and his customers. He is not willing to put himself in a class with the makers of products that are "just as good." He banks on a steady, consistent "turnover." He handles the one established line—the one that is universally accepted as standard. He carries a complete stock of Stewart Products.

Stewart Products offer you a steady source of income all year 'round—not only in summer, but also in winter, when you need it most. Determine right now to sell nothing but leaders for 1918. Concentrate on, "boost," feature and sell Stewart Products—the fastest-selling and easiest-to-sell of all automobile accessories. You will have the entire confidence of customers the minute they enter your shop. You will have satisfied customers who will come again—not only for other Stewart Products—but for everything in your entire line.

Stewart-Warner Speedometer Corporation
CHICAGO, U. S. A.



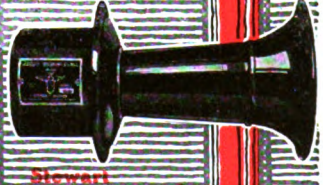
Stewart V-Ray Spark Plug $1



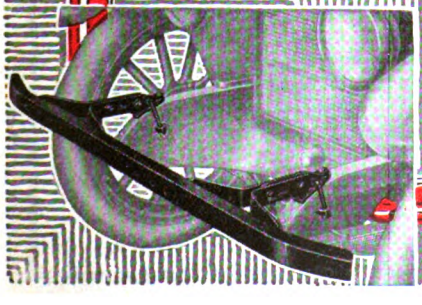
Stewart Vacuum System $10



$5 Stewart V-Ray Searchlight West of Rockies $5.50



Stewart Motor Driven Warning Signal $6 Hand Operated Type $3.50



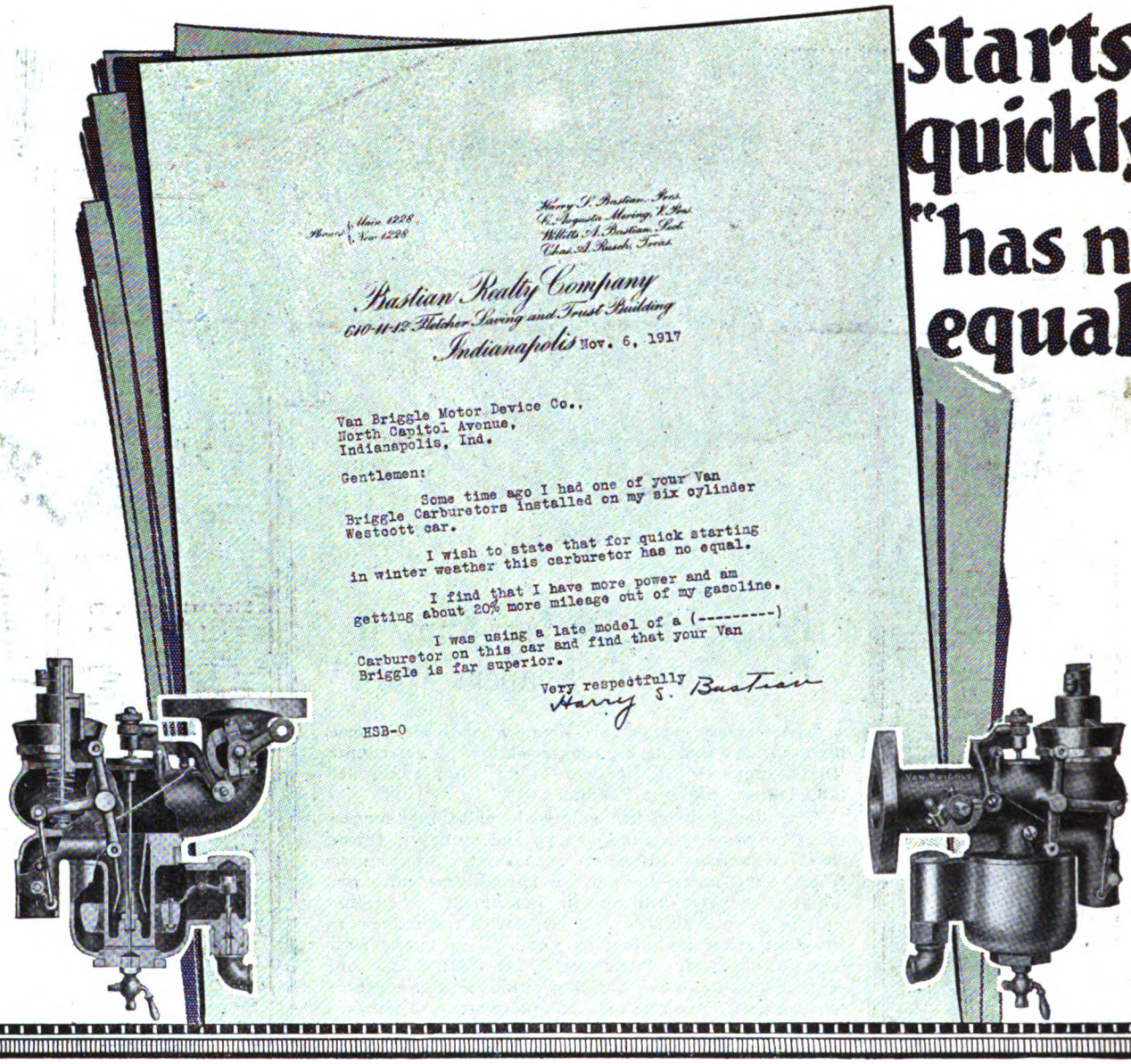
$9 Stewart Autoguard West of Rockies $9.75 Special Ford Model $7.50 West of Rockies $8.05



Stewart Instrument Board for Ford Cars $11.25

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starts quickly—"has no equal"



Harry S. Bastian, Pres.
E. Augusta Moring, V. Pres.
Willits A. Bastian, Sec.
Chas. A. Bosch, Treas.

Phone Main 1228
Auto. New 1228

Bastian Realty Company
610-11-12 Fletcher Saving and Trust Building
Indianapolis Nov. 6, 1917

Van Briggle Motor Device Co.,
North Capitol Avenue,
Indianapolis, Ind.

Gentlemen:

Some time ago I had one of your Van Briggle Carburetors installed on my six cylinder Westcott car.

I wish to state that for quick starting in winter weather this carburetor has no equal.

I find that I have more power and am getting about 20% more mileage out of my gasoline.

I was using a late model of a (---------) Carburetor on this car and find that your Van Briggle is far superior.

Very respectfully
Harry S. Bastian

HSB-O

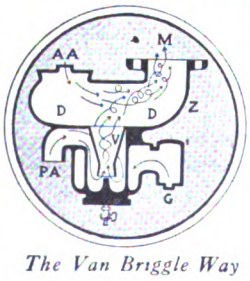
for Pleasure Cars, Trucks, Tractors

VAN BRIGGLE CARBURETOR

One Principle for all Motors

H. S. Bastian, above, is another of the *many* who know personally the superior service rendered by the VanBriggle Carburetor—instant starting, increased mileage, flexibility—everything that you've felt a carburetor *should* do. All motors *welcome* the new life and strength given by the Van Briggle. Illustrated descriptive booklet free on request. *Send for it.* ¶ JOBBERS AND DEALERS: The Van Briggle is as easily handled as tires. Small stock meets any need. New opportunity for profit and service. Write for proposition.

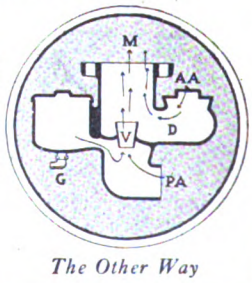
KEY TO DIAGRAMS: PRIMARY AIR (P.A.); AUXILIARY AIR (A.A.); GASOLINE (G); MANIFOLD (M.); MIXING CHAMBER (D.); VENTURI TUBE (V.); LOCATION OF MANIFOLD ON HORIZONTAL TYPE (Z.).



The Van Briggle Way

EXPLANATION OF DIAGRAMS

Because of the peculiar construction of the Van Briggle's primary air chambers, the primary air enters the venturi tube in a whirling, swirling movement, breaking even the poorest gasoline into the most minute particles. The primary mixture then enters the mixing chamber. The auxiliary air, traveling across to the manifold MUST PASS THROUGH THE PRIMARY MIXTURE. Two mixtures are thus assured in the Van Briggle Carburetor—each thorough and absolute. A thorough mixture and complete vaporization mean EVERYTHING to your motor. Compare the Van Briggle Way with The Other Way. There *is* a difference!

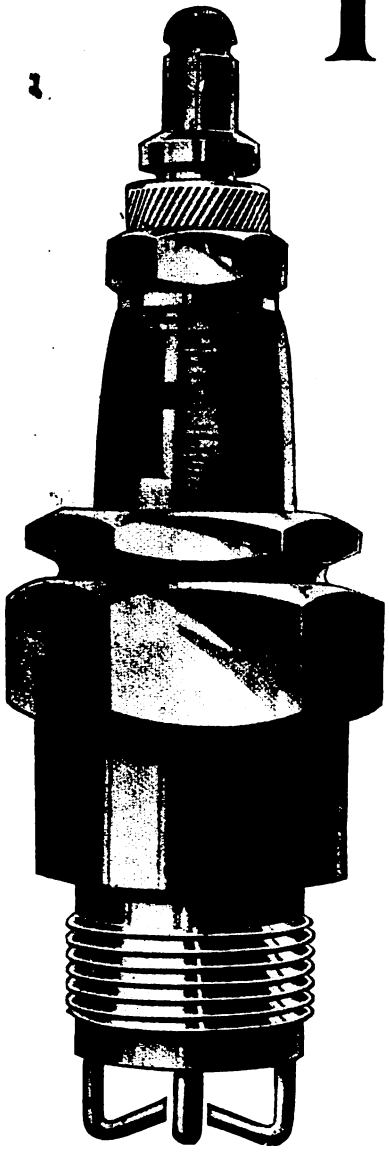


The Other Way

VAN BRIGGLE MOTOR DEVICE CO.
429 North Capitol Avenue, Indianapolis

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HERCULES Spark Plugs



HEAVY DUTY TYPE

The HERCULES Giant

spark plug is equipped with stone insulator and designed primarily for use in motors of the heavy duty type, where every extreme is encountered.

These will be furnished in any and all sizes for tractors and commercial vehicles as well as stationary and marine motors. All the foregoing types are designed especially for this service.

Write your jobber.

STRICTLY A QUALITY PRODUCT
MADE IN U.S.A.

ECLIPSE MANUFACTURING CO.
INDIANAPOLIS

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To Reach Dealers—Jobbers—Garage Owners

Manufacturers who have a merchandise message for the trade are invited to use space in Motor World's forthcoming special Before Show issues.

The Before New York Show issue will be out December 26. Copy and cuts should be in our hands not later than Saturday, December 22. Because transportation of mail is a bit uncertain, we urge early dispatch of copy.

Send reservations at once. It will promote mutual interests.

The Before Chicago Show issue will be out January 16. Copy should reach us not later than Saturday, January 12.

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Both of these special issues are of vital importance to the best dealers, jobbers and garage owners throughout the country—the men who depend upon Motor World to inspire them and guide them in matters related to car, truck and accessory merchandising and maintenance.

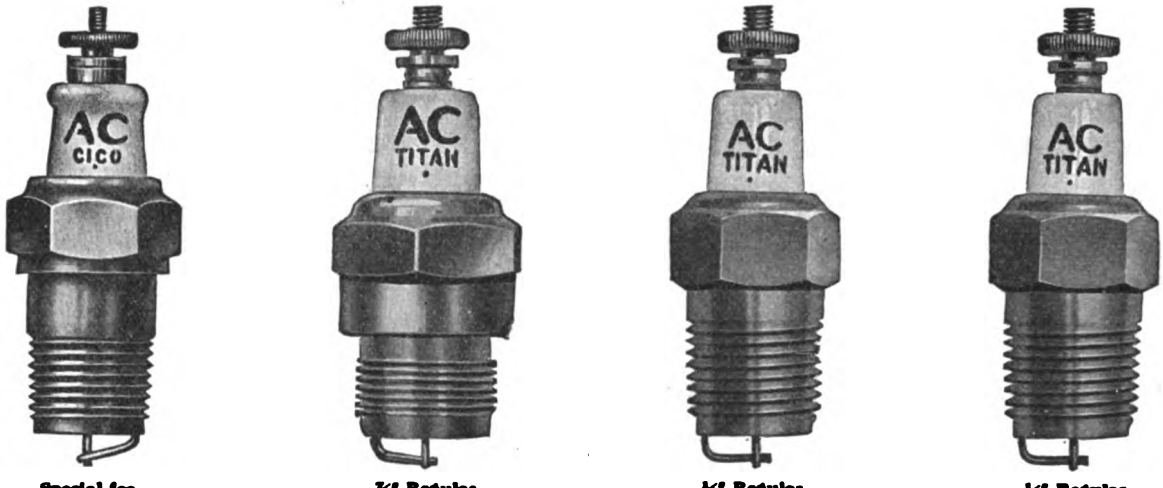
If you have an appeal to these elements of trade use representative space in the forthcoming special issues. Keep in touch with this important subscriber clientele during 1918. Motor World is the best method of successful contact. Address: Motor World, 239 West 39th Street, New York City.

An Opportunity That Should Not Be Missed

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AC Spark Plugs

The Standard Spark Plug of America



Special for Ford Cars A C CICO

⅞" Regular For Maxwells A C TITAN

⅞" Regular For Willys-Overland A C TITAN

⅞" Regular For Studebakers A C TITAN

AC Plugs have proven to be the best under all conditions. That is why 87 manufacturers of Automobiles, Trucks, Tractors and Aeroplanes use them for regular equipment. The leading race drivers are using them. *Your* motor will not give its best performance unless equipped with AC. You will come to them in time. Why not buy a set *now* and note the improvement?

CHAMPION IGNITION COMPANY, Flint, Michigan, U. S. A.

BERGER STEEL TIRE RACKS

Ready for Immediate Shipment

These Racks are made of Pressed Steel finished in green and firmly bolted together.

They are so strong and rigid that no special bracing or anchoring to floor or ceiling is necessary and rearrangements can easily be made to suit convenience.

Berger Steel Tire Racks are practical, permanent equipment; business-like in appearance and adjustable to suit tire sizes.

Get our reasonable prices, and plan to install this equipment before the rush of spring business begins.

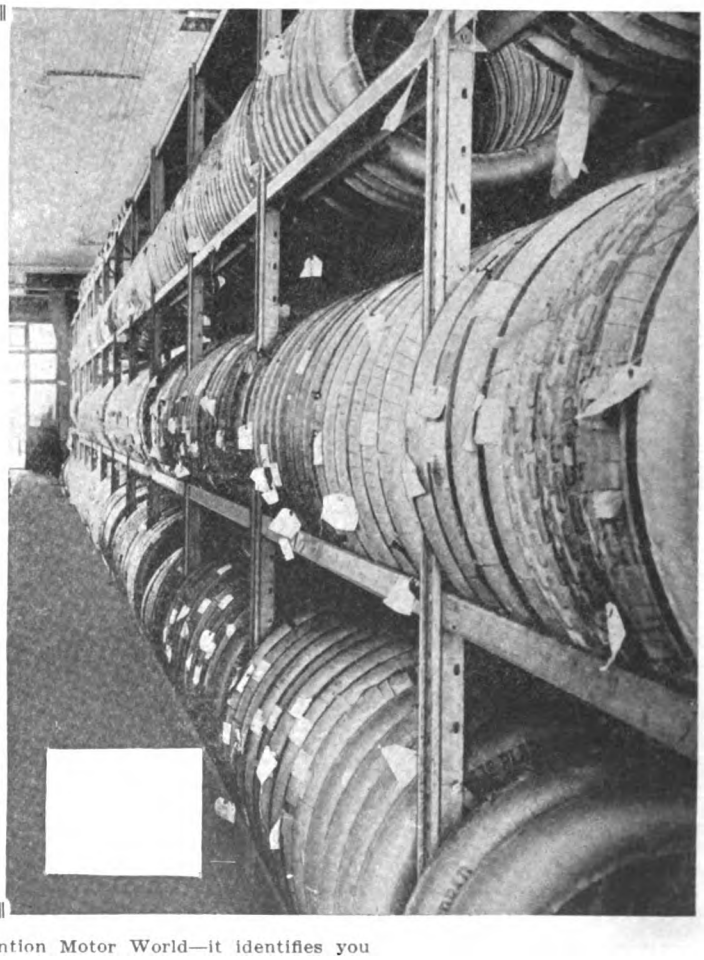
Our Steel Storage Bins and Shelving will also interest you. Send for Catalog.

Address Dept. R. W.

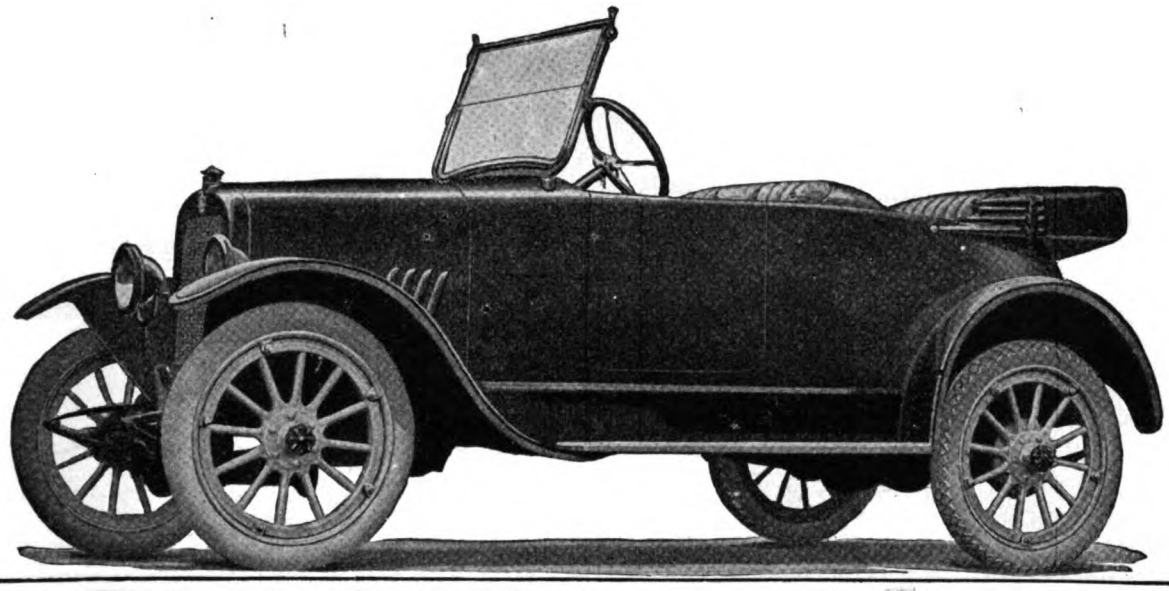
The Berger Mfg. Co., Canton, O.

Branches: Boston New York Philadelphia Chicago
St. Louis Minneapolis San Francisco
Export Dept.: Berger Bldg., New York City, U. S. A.

THE ARMOR PLATE OF MODERN BUSINESS



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WHY I PICKED THE WONDERFUL BRISCOE

By [signature]
Brown-Willson Co.,
Chicago Distributors

We sized up the light car field—made a thorough study of each car in the class. The evidence overwhelmingly favored the Briscoe.

On this wonderful car with the half-million dollar motor we found those features and extras we would expect only on the higher priced cars.

We tested Briscoe economy—found 25 to 30 miles to the gallon the usual thing—found the Briscoe exceptionally light on tires.

Here, we decided, is the greatest light car value we can offer. We chose the Briscoe—and our ever-growing profits show us we made no mistake.

BROWN-WILLSON COMPANY, Chicago.

"THE GREATEST LIGHT CAR"

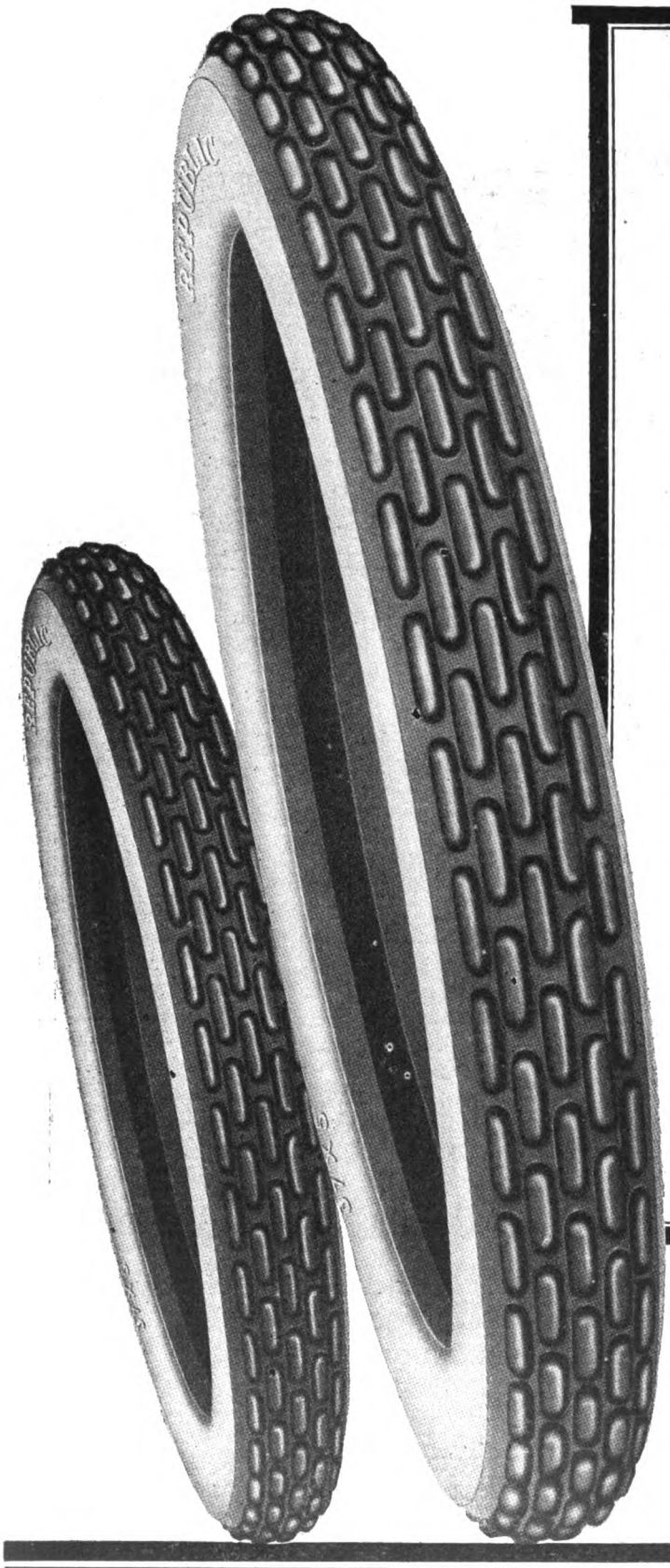
That's the unanimous verdict. Briscoe dealers everywhere are making money. The Briscoe Franchise is worth thousands of dollars a year. Perhaps your territory is open. Address

Briscoe Motor Corporation, Dept. 135, Jackson, Mich.

BRISCOE $725

THE CAR WITH THE HALF-MILLION DOLLAR MOTOR

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The Service of The Republic

Is there a difference in tires?

Republic users say there is.

Thousands of them say so.

They say Republic Tires last longer.

They cannot be attracted away from the Republic to any other tire.

They say that the Prōdium Process makes Republic Tires tremendously tough and strong.

They say that these tires are almost immune to road cutting and chipping.

They say that the patented Staggard tread gives extra security in driving.

They say these things freely, frequently, to all their friends.

Do you know of another tire to which so many people are loyal from year end to year end?

Republic Black-Line Red Inner Tubes have a reputation for freedom from trouble

The Republic Rubber Corporation
Youngstown, Ohio

Originator of the First Effective Rubber Non-Skid Tire
Republic Staggard Tread

Republic
STAGGARD
PAT. SEP. 15-22-1908
Tread

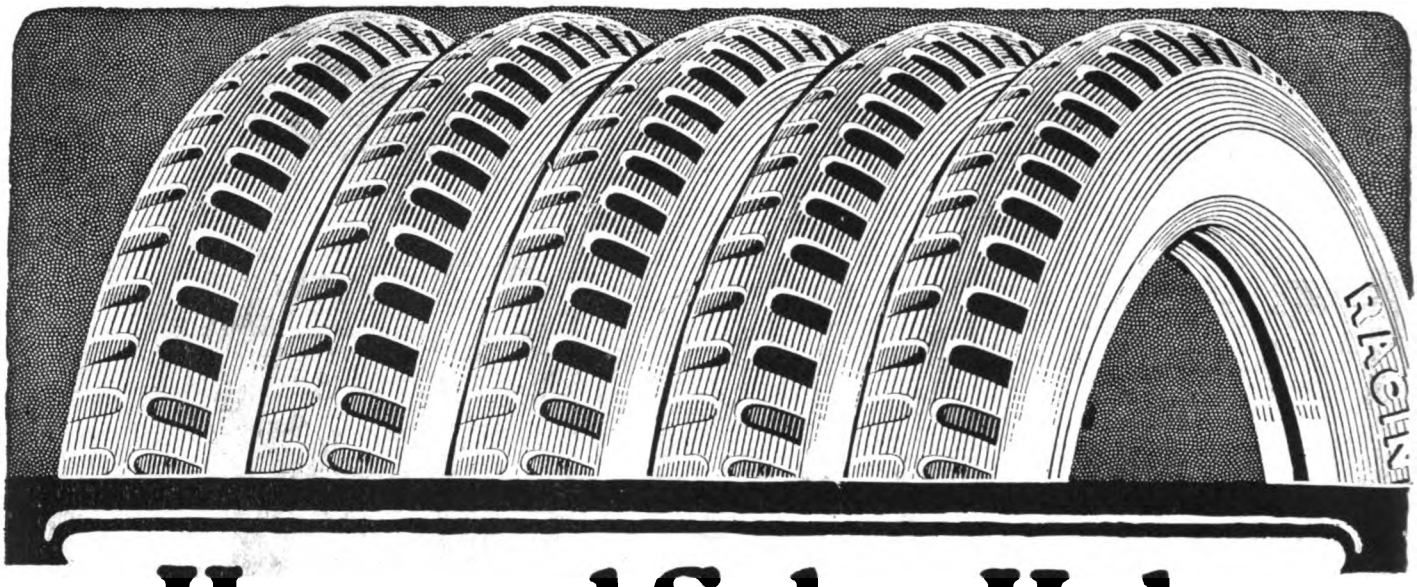
Maximum Grip with Minimum Friction

REPUBLIC TIRES

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Unusual Sales Help *for the Tire Dealer*

ASIDE from the big national advertising campaign in The Saturday Evening Post, The Country Gentleman, and the best farm papers—dealers who sell Racine Country Road and Multi-Mile Cord tires will receive direct sales-help that will bring great numbers of customers to their stores.

Furnished Free

Here are powerful helps to make sales for you—if you sell Racine Country Road and Multi-Mile Cord tires. All without cost to you.

Attractive Window Tire Standards—Flange Signs—Linen Banners—Envelope Inserts for your mailing list—Circulars, etc., all handsomely colored. Each points to your store as the place to buy Racine Country Road and Multi-Mile Cord tires, as advertised in The Saturday Evening Post, etc.

Real Opportunity

You know the astonishing success dealers have made selling Racine Country Road and Multi-Mile Cord tires. This success has been built on *quality* alone, with no advertising.

Now *national advertising*, plus these direct selling helps, means ever greater profits than ever.

Immediate Deliveries

Distributors for Racine Country Road and Multi-Mile Cord tires are located at all principal distributing points. Immediate deliveries are made to dealers from the complete stock these top-notch tire men always carry.

Racine Country Road and Multi-Mile Cord tires mean thousands of extra dollars to dealers. Is your locality open? Write today.

IMPORTANT: Every genuine Racine Country Road and Multi-Mile Cord tire must bear the name

RACINE RUBBER COMPANY

Racine, Wis.

RACINE
Country Road
and
Multi-Mile Cord
TIRES

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A CAR OF WIDE APPEAL

THE dealer who presents the new Oakland Sensible Six in any territory has before him a broad market.

In this new Oakland he displays an automobile that appeals to sensible motorists who demand a thrifty car, to business and professional men who desire an active, dependable car, to farmers who require a robust car sparing of fuel, and to women who want a comfortable car.

In the new Oakland line he offers the touring and roadster models for the regular demand, and the enclosed models, the Sedan, the Roadster Coupe and the Coupe, for those who seek year 'round cars of wide touring range.

All these models are mounted on the standard Oakland chassis.

The Oakland dealer attracts and interests these different kinds of buyers with one commanding type of automobile.

OAKLAND MOTOR CAR COMPANY
PONTIAC, MICH.

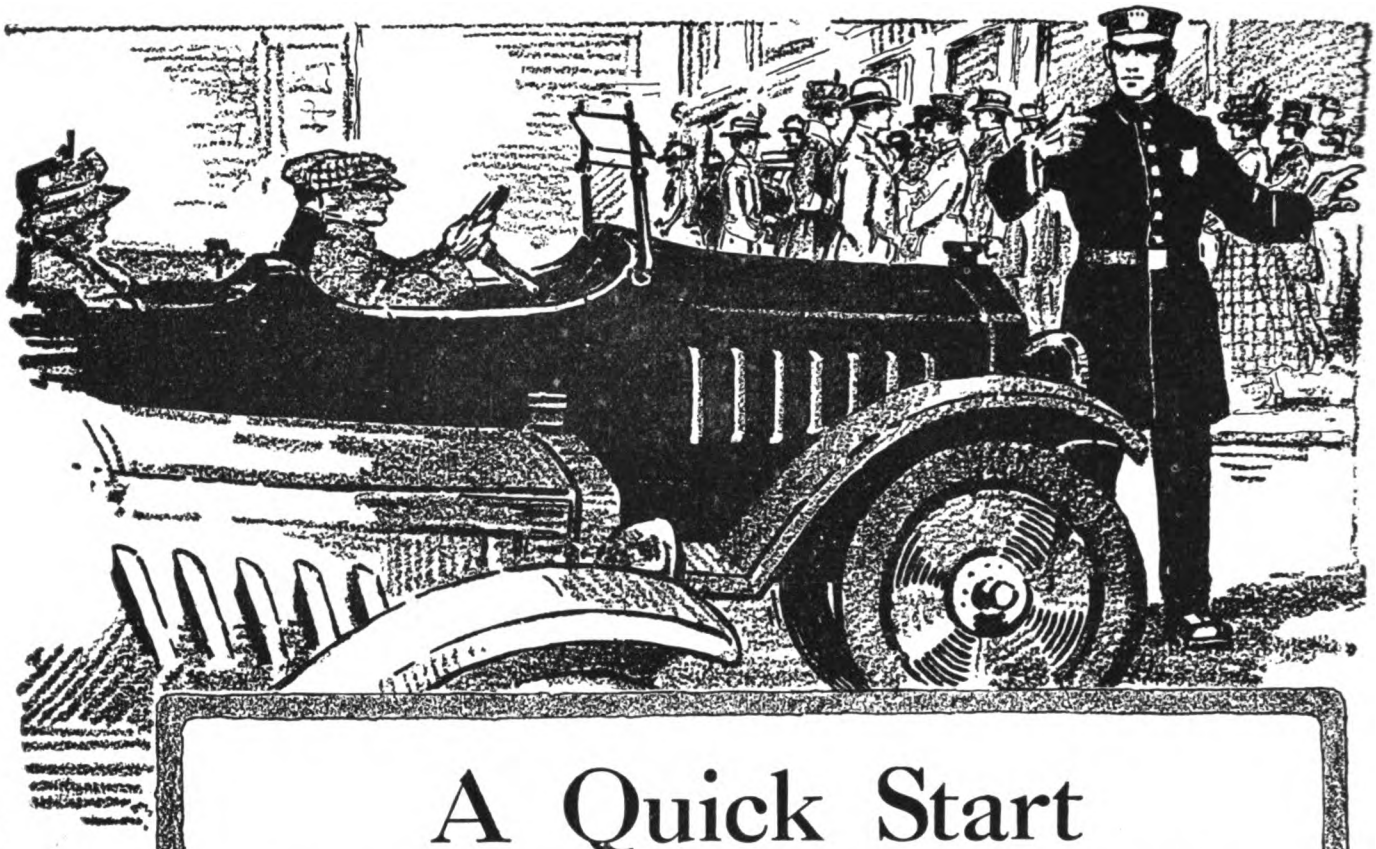
The overhead-valve high-speed six-cylinder engine has improved manifolds which secure the utmost power value from the present low grades of gasoline.

Touring Car . .	*$ 990*
Roadster	*990*
Coupe	*1490*
Sedan	*1190*
Roadster Coupe .	*1150*

F. O. B. Pontiac, Mich.

OAKLAND SENSIBLE SIX

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A Quick Start

Nothing is more humiliating to a motorist than to have his car fail to start promptly when the traffic officer signals, "come ahead".

The situation carries with it a sense of competition—several cars waiting for the word to start, and the eyes of all on any car that is slow and holds up the line.

The use of a poor lubricant is very apt to be the reason for a slow pick-up. Faulty ignition due to foul spark plugs, weak compression, excessive friction—all result from this cause.

Avoid these troubles. Do the right thing by your motor from a lubricating standpoint. Use

TEXACO MOTOR OIL

This oil will do all that a motor oil can do to insure a quick start. Other things being equal, the use of Texaco Motor Oil will enable your motor to develop all the power of which it is capable.

This oil lubricates perfectly, keeps friction at a minimum. It gives an absolute seal between piston and cylinder walls thus preventing rapid deterioration of the lubricant through leakage of gasoline into the crank case.

Due to certain basic qualities it is impossible for Texaco Motor Oil to deposit a hard carbon crust in combustion chambers and cylinders. Any carbon which does result from its use (and no oil is free from carbon) will be of a soft, sooty nature; will not score or cut the cylinders; and may be easily removed with a piece of cloth.

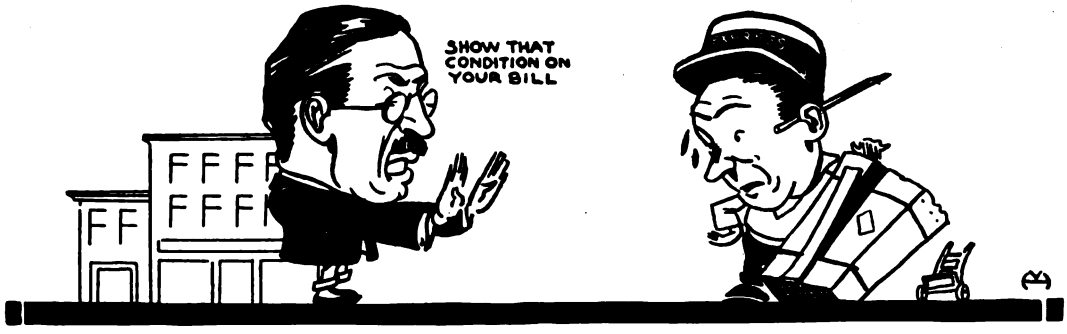
When you buy motor oil buy Texaco. The best way, the safest way to buy, is in one or five gallon cans. Recognize Texaco Motor Oil by its clear, clean color.

THE TEXAS COMPANY

New York Chicago Houston

DISTRIBUTING OFFICES IN MOST CITIES

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Records Are Necessary to Back Up Even a Just Claim

Don't accept express or freight in bad condition—or if parts are missing—until the facts are noted on your freight bill.

Place your claim at once with the proper Express or R.R. Co., and make charges against it on your books.

In case of shortage write the shipper at once, notifying him. If left to memory business relations suffer.

The facts grow dim—settlements drag—money is dissipated.

Jobbers and makers want dealers' good-will. Dealers need the good-will of those from whom they buy.

Keep your accounts fully—so clearly that there is no loophole for even an honest misunderstanding.

Short Accounts Make Long Friendships

Send for your copy of our Booklet—by an expert—on "How to Run a Garage."
Manufacturers, Jobbers and their Salesmen are anxious to co-operate with you. Ask them for ideas.

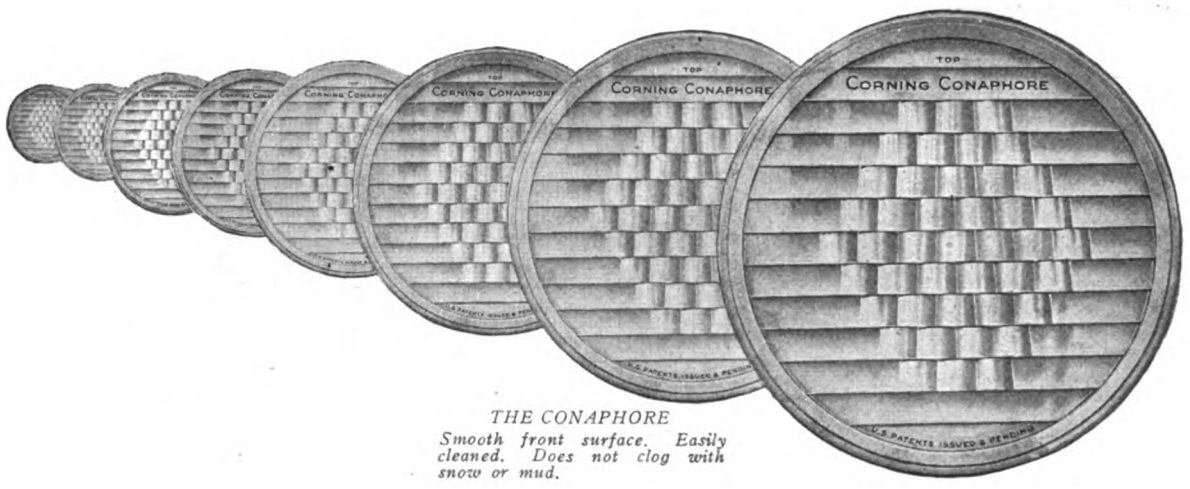
National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BLDG. CHICAGO, ILL.



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THE CONAPHORE
Smooth front surface. Easily cleaned. Does not clog with snow or mud.

How Conaphore Sales Have Grown

In less than a year on the market the Conaphore leads all other headlight devices in number sold.

Even you who have handled Conaphores from the start cannot appreciate fully the remarkable sales-record established by this fastest selling headlight glass.

You know that Conaphores have sold rapidly in your own locality. You have seen the demand for Conaphores double and redouble many times over in your own territory. But have you realized that throughout the entire United States and Canada the same conditions prevail?

Why the Conaphore is a rapid seller

All motorists now realize that their headlights should be entirely without glare. But they cannot afford to jeopardize their own safety by equipping their lamps with devices—such as diffusing and ordinary prismatic lenses—which do away with glare *at the expense of road light.* So they are turning to the Conaphore in constantly increasing numbers.

Range—full 500 ft.

The Conaphore is the only headlight glass on the market that permits the bulb to be focused for maximum range, yet eliminates all glare. This is because patented corrugations on the inner surface bend down the intensified beam and shoot it along the road where it belongs, for 500 feet ahead of the car. Ample side light is provided by cylinders which fan out some of the light over the roadside.

Penetrates snow flurries and fog

Conaphores are made of Noviol Glass (*patented*). This yellowish-tint glass absorbs the blue and violet waves present in all white light. Thus diffusion of the light by flurrying snow or fog particles is prevented and dangerous "back-glare" is eliminated. Driving behind Conaphores motorists can speed through a thick night at 20 to 25 miles an hour in perfect safety.

Also made of clear glass

Conaphores are also made of clear glass. Clear glass Conaphores give 500 feet range and eliminate all glare, but lack the advantage of piercing snow flurries and fog. We always recommend the Noviol, and suggest that you do the same.

Conaphores for Christmas

Many of our dealers are reporting a strong Christmas demand for Conaphores. To further holiday sales, suggest to possible purchasers that Conaphores make an ideal Christmas gift for any motorist. There is bound to be profitable holiday business for the dealer who gets up a Christmas window display of Conaphores, and is prepared to make instant deliveries.

Cold weather made profitable

We are booming winter business right along. That's why we are keeping up our Conaphore advertising in the Saturday Evening Post, Literary Digest, Collier's, Leslie's, etc. We aim to make cold weather profitable for our trade. If you want your share of the mid-winter business we are building on Conaphores, get in touch with us at once.

PRICE LIST

Noviol Glass	Per Pair	Clear Glass	Per Pair
5 to 6⅞ in. inc.	2.40	5 to 6⅞ in. inc.	1.60
7 to 8½ in. inc.	3.50	7 to 8½ in. inc.	2.50
8⅝ to 10 in. inc.	4.50	8⅝ to 10 in. inc.	3.00
10⅛ to 11½ in. inc.	6.00	10⅛ to 11½ in. inc.	4.00

Prices 25 cents more per pair West of Rocky Mountains. Sizes vary by steps of ⅛ inch above 6½-inch size.

CONAPHORE SALES DIVISION

EDWARD A. CASSIDY CO., Inc., Managers
Madison Avenue at 40th Street, New York

CORNING GLASS WORKS



Conaphores make an ideal Christmas gift for any motorist.

NO GLARE RANGE 500 FT. **CONAPHORE** **PIERCES FOG AND DUST**

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It's the Large Radiating Surface and the Thermostat

A LARGE radiating surface is the secret of success in a car heater. Not a small surface red hot, that burns your feet while the rest of you freezes, but a large surface giving off the proper warmth to make you comfortable all over.

The Thermo-Heater has the largest and most equitably warmed radiating surface. It is a foot and body warmer, not a shoe burner.

And you can *regulate* the heat, so as to maintain just the temperature you want, by means of the Thermostat attachment. You can let in a degree of heat to warm you on the *coldest* days, and then when the weather moderates you can tone the heat down to suit your comfort.

Dealers will do well to consider these points in selecting the heater they are going to handle in 1918.

Many leading cars are equipped with these heaters. If your car has no heater as standard equipment, recommend the Thermo-Heater to your customers. It will add to their pleasure in the car.

The Thermo-Heater is easily attached. It sets *on* the floor—not *in* the floor. There are but three holes to bore, and the pipes to connect.

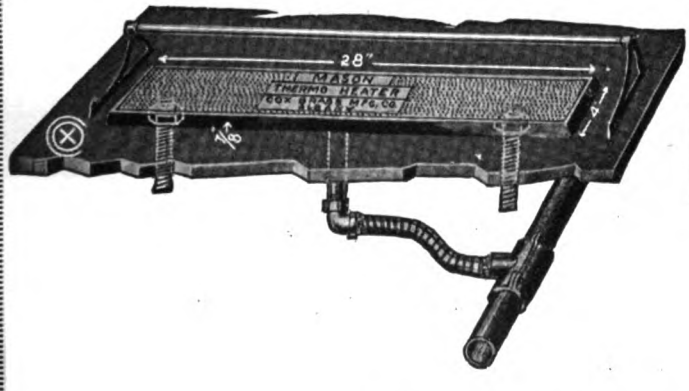
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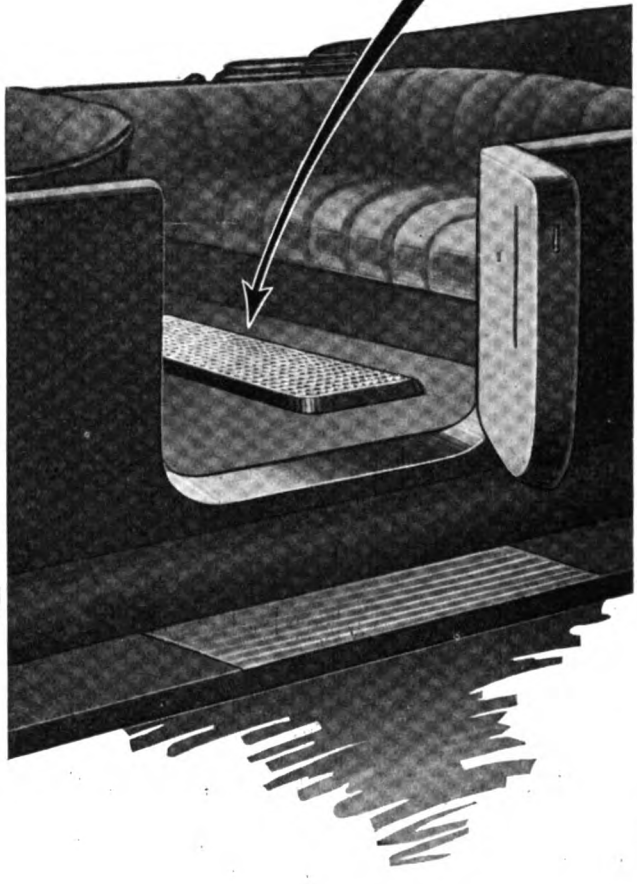
Model "A," 28" long, 4" wide, 1" thick, Cast Iron Black Enameled $12.00

Model "B," 28" long, 4" wide, 1" thick, Polished Cast Aluminum $18.00

Model "C," 14" long, 8" wide, 1" thick, Cast Iron Black Enameled $12.00

Model "D," 14" long, 8" wide, 1" thick, Polished Cast Aluminum $18.00

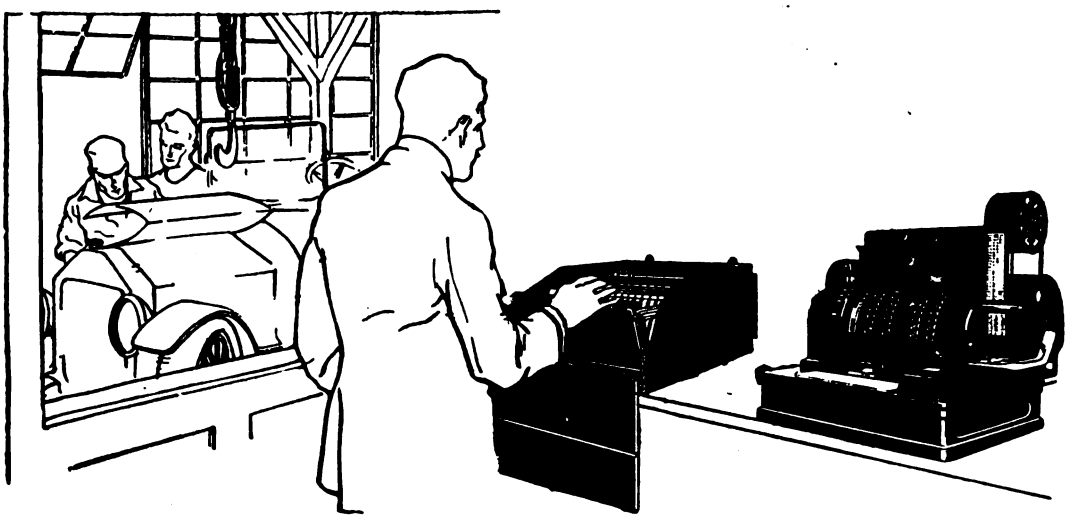




THERMO AUTO HEATER

COX BRASS MFG. CO. Established 1872 **Albany, New York**

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Up-to-date System for Garages

Electrically Operated National Cash Register

Greatest labor-saving machine for garages and service stations.

It does 15 things in three seconds.

It gives a separate record of money received for storage, tires, oil, gas, repairs, etc.

Advertises your goods direct to your customers.

It does quickly what helpers can't do.

The New N. C. R. Credit File

Cuts out all bookkeeping of customers' accounts.

No customers' ledger, blotter or daybook.

Every customer's account balanced to the minute.

Complete record with one writing. Saves time and work.

Customers like it; it saves their time.

Prosperity is increasing. Hence don't delay.

Order now and get the profits which our system will make for you.

It more than pays for itself out of the money it saves. Sold on small monthly payments.

Old cash registers repaired, bought, sold, rebuilt and taken in exchange for new registers.

To Dept. 34,
National Cash Register Co., Dayton, Ohio

Please send me full particulars of your latest model cash register and the new N. C. R. credit file.

Name_____

Business_____

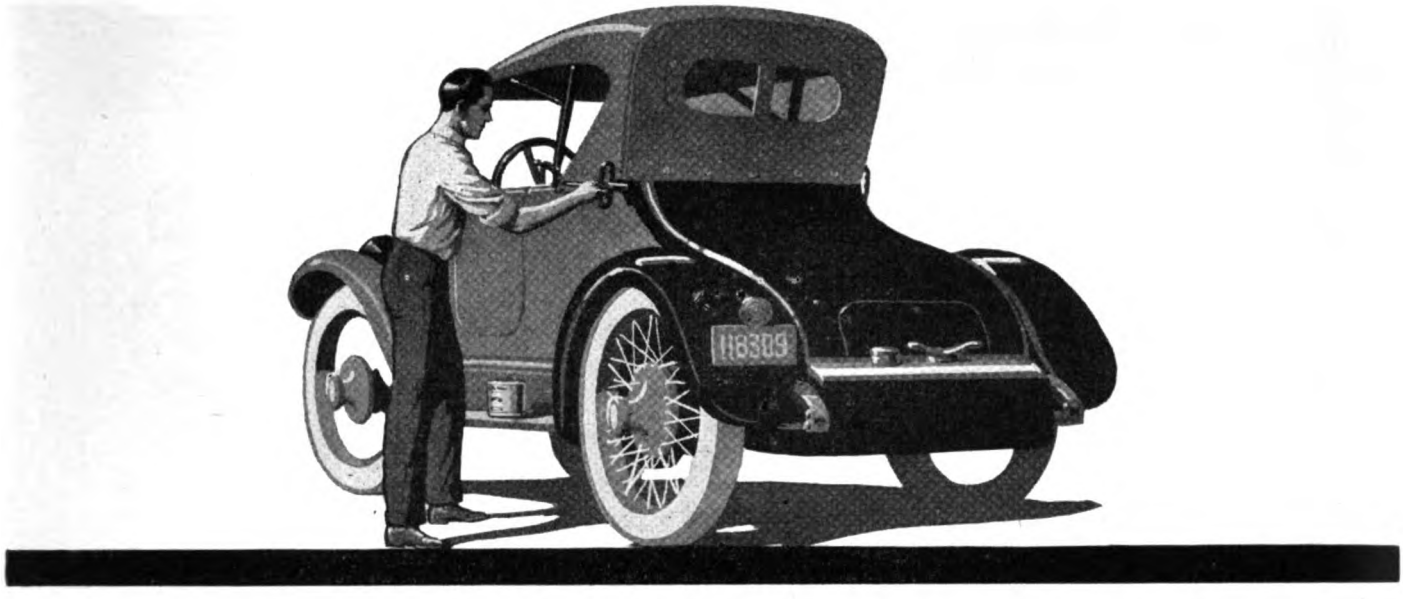
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Get the benefit of these prosperous times.

Cut out this coupon and mail it today.

When writing advertisers please mention Motor World—it identifies you

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More Than 3,000,000 Cars Need Refinishing this Year

3,000,000 this year! How many next year, and the year after?

A big thing now—and it's bound to increase. There never was a better time to put in a real line of Auto Finishes—made by the manufacturers of finishes for the world's largest auto manufacturers.

Thousands of new cars are finished with Glidden Varnishes. This same organization now produces a special finish for the auto owner.

Not every finish can be used on a car. You will quickly see the wisdom of choosing a line of Auto Finishes produced by men who have had years of study in this field.

Paint Your Ford for $1.00

This is the famous auto finish slogan that will make sales for you this year—watch the Saturday Evening Post for Glidden announcements. You can safely tell your customers to paint their own cars. They can do it themselves—easily, conveniently, economically, quickly. They *will* do it themselves if you tell them all the reasons why they should use Glidden Endurance Auto Finishes.

Continuous Advertising in National Publications will boost the sales of Glidden Endurance Auto Finishes. A tremendous force which begins working for you the moment you put in the line. Then, too, there are Bright Colored Hangers, Posters, Lithographed Signs and Color Cards, furnished with every shipment of Glidden Endurance Auto Finishes. We furnish everything you'll need for quick selling. Movie Slides and Electros are always a part of Glidden Merchandising plans.

Four Big Special Offers—Take Your Choice

We have four special offers ready for you. Each one contains a good assortment of Glidden Endurance Auto Finishes, a substantial quantity of Glidden Advertising and full promoting service. Send today for the list. Let's get together and line up a big share of the good business now in sight.

THE GLIDDEN VARNISH CO.

Manufacturers of Glidden Pale Wearing Body Varnishes, Quick Rubbing Varnishes, Fender Finishing Enamel, Colored Rubbing Varnishes, Red Metal Primer, etc.

Cleveland, Ohio

Factories: Cleveland—Toronto

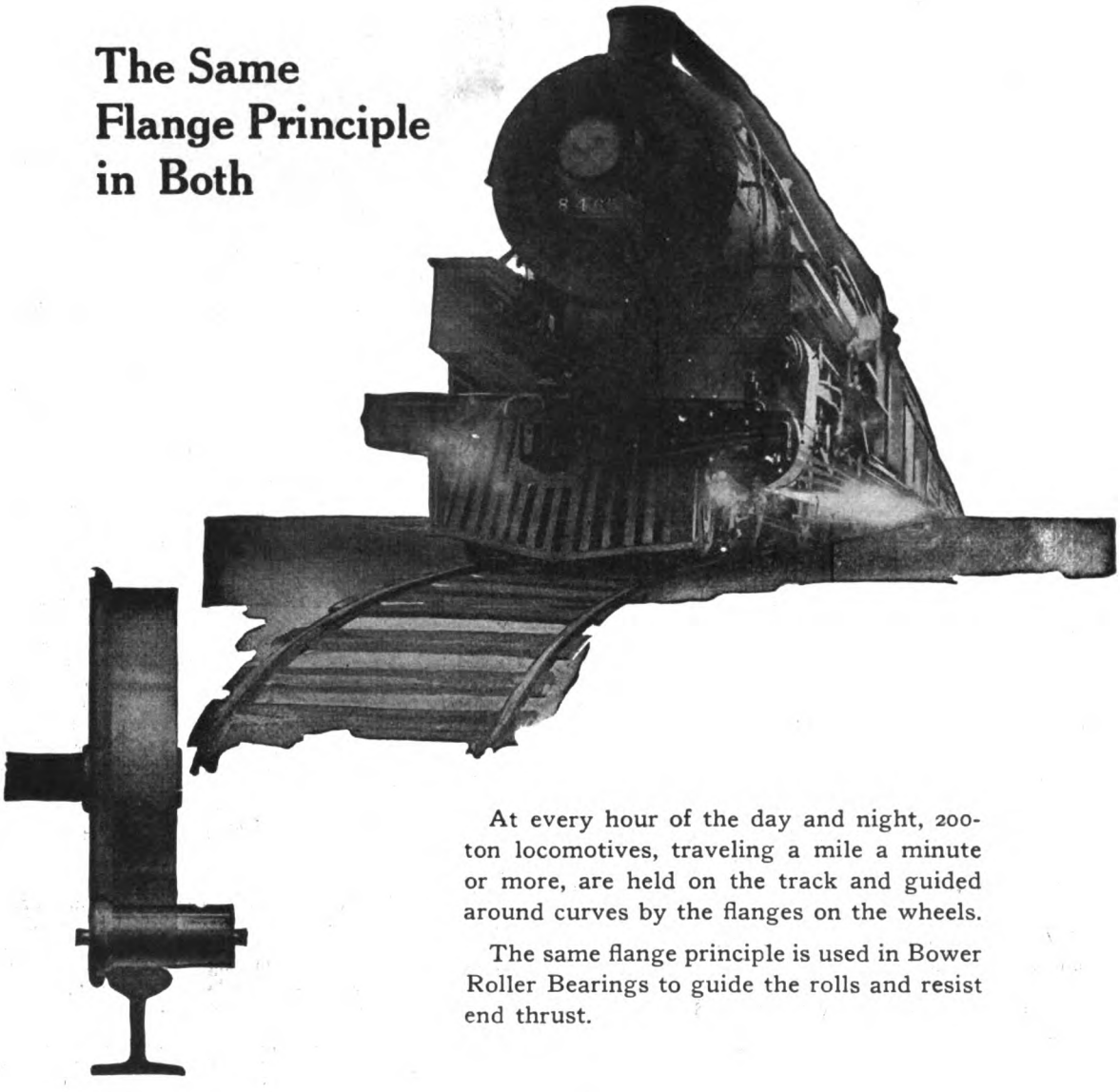
Branches: New York—Chicago—London



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BOWER SAVES POWER

The Same Flange Principle in Both

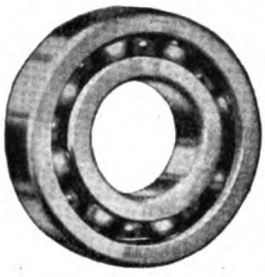


At every hour of the day and night, 200-ton locomotives, traveling a mile a minute or more, are held on the track and guided around curves by the flanges on the wheels.

The same flange principle is used in Bower Roller Bearings to guide the rolls and resist end thrust.

BOWER
ROLLER BEARING CO.
Detroit Michigan

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Announcing

Strom BEARINGS

FORMERLY U.S. BALL BEARINGS

HEREAFTER the product of the U. S. Ball Bearing Mfg. Co.—formerly designated as U. S. Ball Bearings—will be known by the trade name of Strom Bearings.

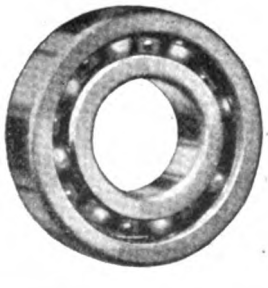
In announcing this change of name of its product the U. S. Ball Bearing Mfg. Co. also desires to call your attention to the fact that there has been a material increase of types and sizes of its standard bearings, details of which are shown in the Strom Bearing data sheets which will be issued in a few days.

If you care to be supplied with these data sheets kindly write.

U. S. BALL BEARING MFG. CO.

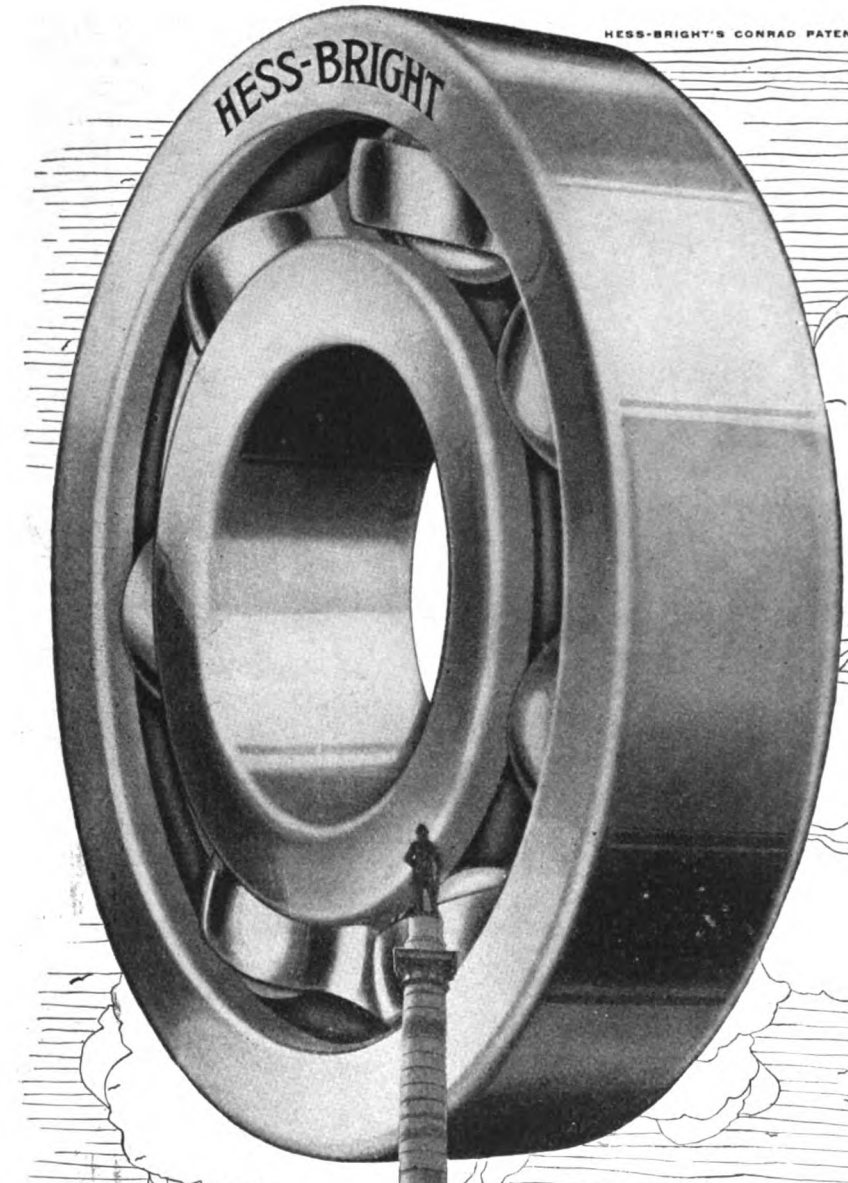
Conrad Patent Licensee

Palmer St. & Kolmar Ave. CHICAGO, ILLINOIS



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HESS-BRIGHT'S CONRAD PATENTS ARE THOROUGHLY ADJUDICATED



Every employee in our organization, by inspiring that confidence which we have in him, has accomplished much—he has helped to create the integrity of

HESS-BRIGHT
BALL BEARINGS

By his loyalty he has demonstrated his worth; he knows that his interests, your interests, and ours are one.

It is this loyalty and pride of achievement that has won your confidence in our organization, and incidentally, in HESS-BRIGHT BALL BEARINGS.

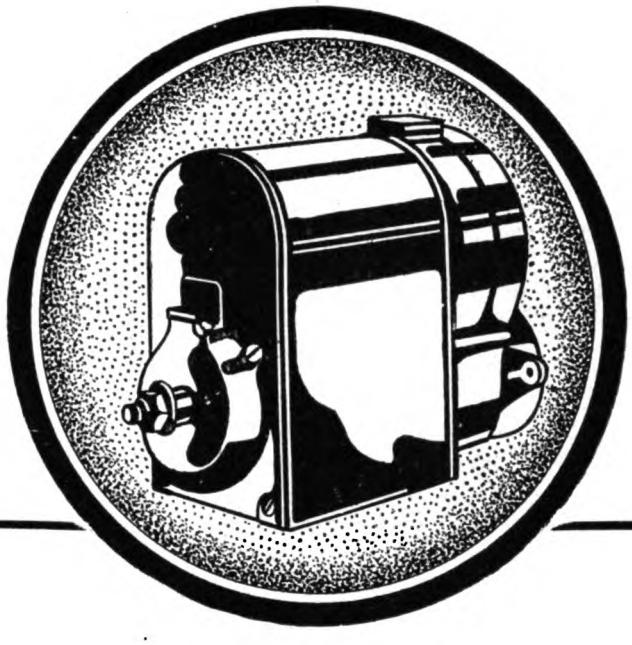
THE HESS-BRIGHT MFG. CO.
PHILADELPHIA

Hess-Bright Distributors for retail trade in every city of importance

SMITH MEMORIAL
ONE OF THE BEAUTIFUL ENTRANCES TO FAIRMOUNT PARK, PHILADELPHIA

LOYALTY-ACHIEVEMENT

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The Difference between Magnetos

It lies primarily in the design.

Any Magneto maker **can** use the best of selected materials if he will. Some do.

But designs are exclusive. They account for differences both in sturdiness and in electrical efficiency.

For example, the fewer parts in Eisemann Magnetos, and in particular the one-piece frame, contribute enormously to durability and therefore reliability.

Then, too, the direct route by which the current is picked up and distributed, prevents electrical losses.

The patented pole pieces and the excellent proportions of the windings are important factors.

To the combination of all these points of superiority, may be traced the power of the Eisemann spark.

When thorough investigation and comparison is the basis for selecting the Magneto, Eisemann almost invariably earns the decision.

THE EISEMANN MAGNETO CO.

Sales and General Offices: 32-33d St., Brooklyn, N. Y.

Chicago, Ill., 910 South Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

EISEMANN
MAGNETO

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MARATHON

SPEED ENDURANCE

You merchants who sell automobile tires have noticed one of the most marked effects of the war in this country: that is, the universal tendency on the part of the customer toward more careful buying. Car owners are seeking more than ever before the soundest values that their money will buy.

The fact that more and more owners are turning today to Marathon Hand-made Tires is a remarkable tribute to the economy that lies in the really well-made, hand-built tire.

It will pay you, as a merchant, to become acquainted with Marathon Hand-made Tires; to learn more about the way these tires are guaranteed by the manufacturer, and to know how the public is coming to appreciate a tire made and sold in this way.

There is a fair and generous profit for you in every Marathon tire you sell.

But, more than that, there is such an unusual service in each tire that makes your customer loyal to you and to Marathons. That's the kind of enthusiasm that means good, stable business for you—business that will grow better year after year.

Write us and let us tell you more about these tires; and about the Marathon guarantee.

The Marathon Tire & Rubber Co.

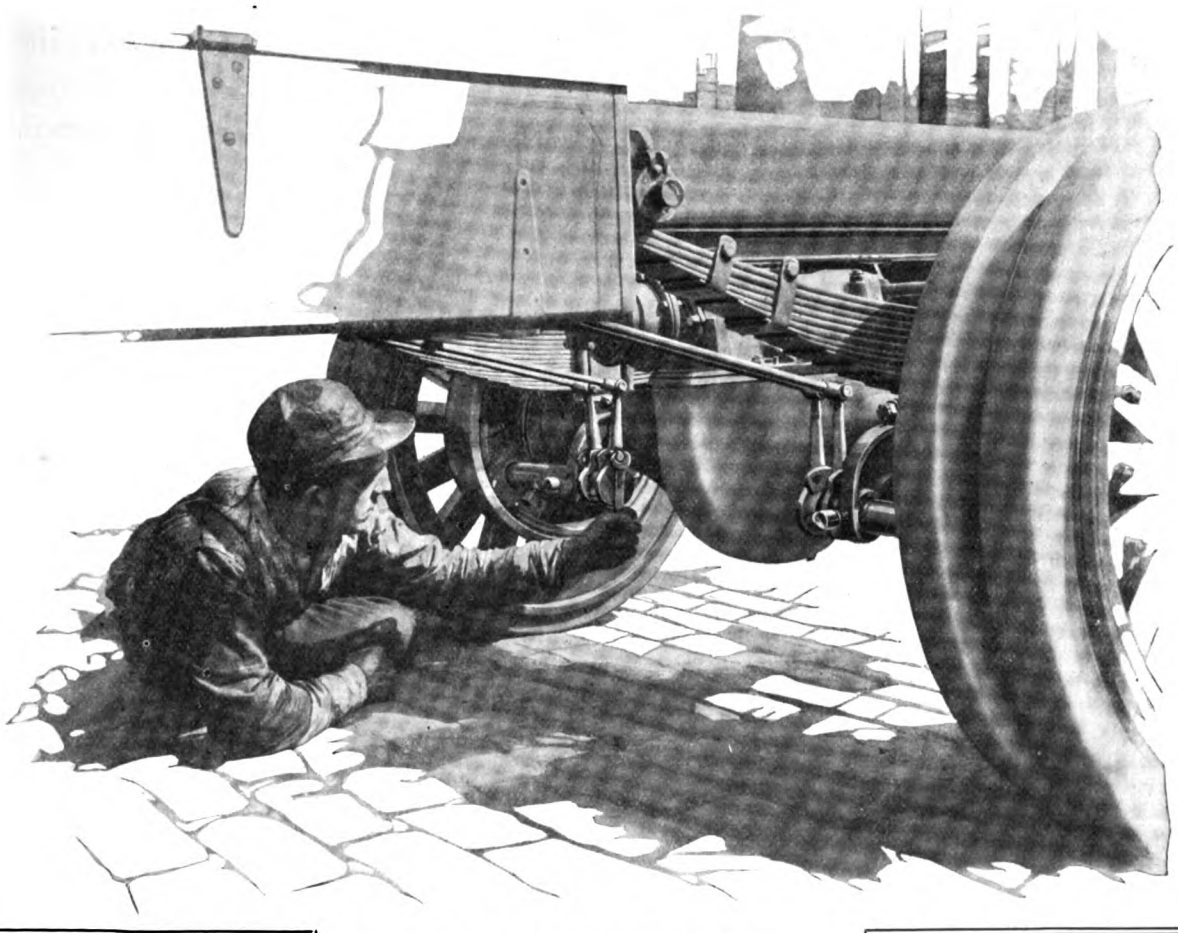
Cuyahoga Falls, Ohio

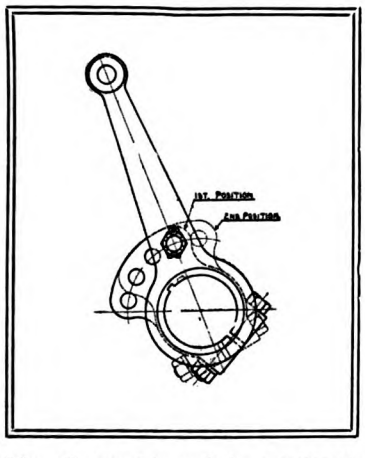
Canadian Factory, St. Catharines, Ontario

WAREHOUSES:

700 Beacon St., Boston
549 W. 52nd St., New York
1458 S. Michigan Ave., Chicago
3434 Locust St., St. Louis
200 South Highland Ave., Pittsburgh
10213 Euclid Ave., Cleveland
1809 Grand Ave., Kansas City
55 Second St., San Francisco

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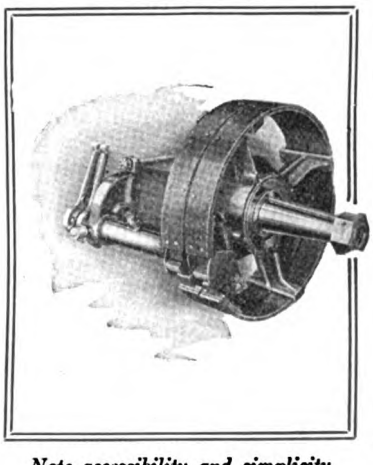
The adjustment is made by a sector attached to the brake pull lever. To tighten up on the brake levers simply take out the bolt which fastens this sector to the lever, and move the hole in the lever backwards one hole on the sector.

FOR INSTANCE—

Note the provision for adjusting the brakes on the Sheldon Worm Gear Semi-floating Rear Axle. It is not necessary to touch the brakes themselves. Just move back the sector to which the brake pull lever is bolted and insert the lever bolt in the next hole. Simple—isn't it? and quick. Minute saving and money saving.

It is in this accessibility of parts, this amazing refinement of every feature to best meet the demands of service that one finds the keynote of Sheldon supremacy.

Write for further Sheldon information.



Note accessibility and simplicity of adjustment

SHELDON

WORM GEAR AXLES

SHELDON AXLE AND SPRING CO. *Makers of springs and axles for heavy duty service for more than fifty years.* WILKES-BARRE, PA.

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L P
C H O

SUCCESS in the accessory business is largely a matter of the line you sell. The day of "just as good" is past and the successful dealer of to-day handles well known, well advertised goods with an established reputation of quality.

To the experienced and discriminating buyer this means

HALLADAY BUMPERS

Unapproachable in Quality, Complete and Comprehensive in Style and Pattern, widely advertised and with an Established Reputation that makes the Halladay Brand a Guarantee of Quality backed by square dealing.

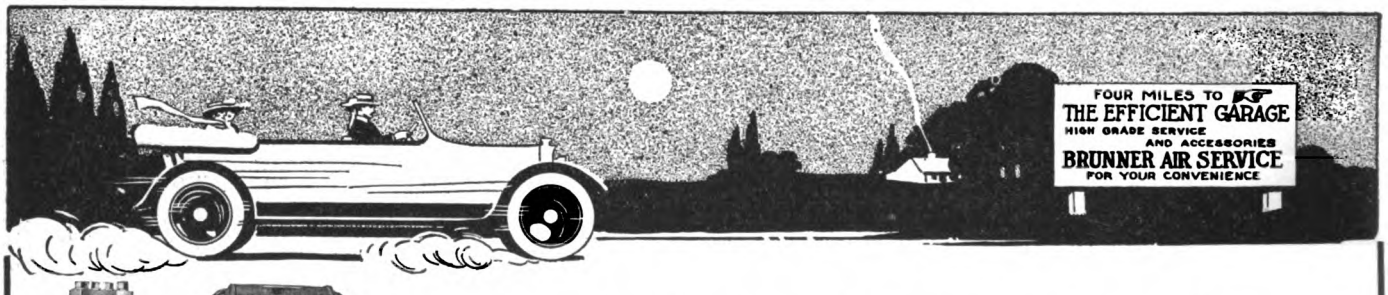
The Halladay line for 1918 comprises several new designs including the

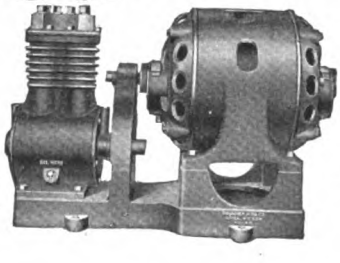
HALLADAY MULTIPLE SPRING BAR

Our new catalog is now ready—write for it today

L. P. HALLADAY COMPANY, Streator, Illinois

Distributors: Asch & Co., 16-24 W. 61st Street, New York City; E. L. Thompson Co., 817 Boylston Street, Boston, Mass.; Gray-Heath Co., 1440 Michigan Avenue, Chicago, Illinois; Sanford Brothers, Chattanooga, Tenn., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.





The motorist who drives his car during the winter months knows that the severe jolts and jars his tires are subjected to on the frozen ruts and ridges of the roads during the winter necessitate even more careful tire inflation than during the summer months, and he favors Brunner Air Service because he knows it is a dependable and efficient service.

Investigate the* BRUNNER *Air Compressor

If you do not find the Brunner Line in your jobber's catalogue we will be glad to send you the name of the Brunner Jobber covering your territory and one of our complete catalogues and Garageman's Handbooks on Compressed Air.



BRUNNER MANUFACTURING COMPANY

Main Office and Plant
UTICA, NEW YORK

Cincinnati Branch
CINCINNATI, OHIO



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How Would You Like to Sell a Fleet Like This?

SELLERS of motor trucks—your biggest year is looming up ahead! Never has the outlook been so full of possibilities.

The Government, the railroads, and the express companies join in warning the public to prepare for car shortages and freight congestion in the months to come. Four of the largest express companies, in a joint pamphlet of warning and advice, say, *"It is also requested that freight service and motor trucks be used for the short haul traffic in and around congested districts."*

INTERNATIONAL MOTOR TRUCKS are filling the breach on every hand. Far-sighted dealers are placing Internationals in increasing numbers with far-sighted business men. One large corporation is already using 600 Internationals. Dealers will find sales coming still faster as the situation becomes more and more serious.

INTERNATIONAL MOTOR TRUCKS meet the needs of any and every firm with transportation problems to solve, in 1500, 2000, 3000 and 4000-pound capacity sizes, at prices ranging from $1450 to $2550 for the chassis (f.o.b. factory) with suitable bodies for every business. You know International standards and reputation—but have you seen the new 2-ton Model G?

We offer this line of International Motor Trucks as a most profitable dealer opportunity. The time is ripe for easy selling. Your territory may still be open. If it is, get an International contract. Write today for full information.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
(INCORPORATED)
155 HARVESTER BUILDING CHICAGO U S A



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Sell The Spring You Would Use On Your Own Car

Put yourself in the customer's place. — That will make more business for you, and eventually, for us.



PRACTICALLY UNBREAKABLE

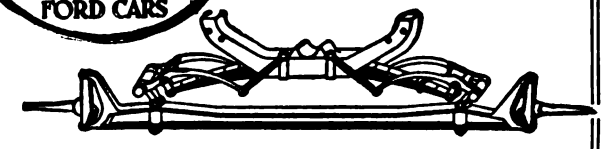
THERE'S A HARVEY JOBBER NEAR YOU
Our new catalogue giving Complete measurements of over 900 Styles of Springs is yours on request

HARVEY SPRING & FORGING CO.

920-17th Street RACINE, WIS.

The Original Double-Arm SHOCK ABSORBER
W & C
For FORD CARS

$10 Per Set of 4



W & C

The Original Double-Arm Shock Absorber Makes As Much Difference As Pneumatic Tires on Fords

Installing a set of W & C double-Arm Shock Absorbers is as good as substituting pneumatics for a set of hard rubber tires. Their resiliency reacts to the immediate advantage of both passengers and mechanism.

They are as desirable on Ford cars as air-filled tires. You *know* how desirable *that* is.

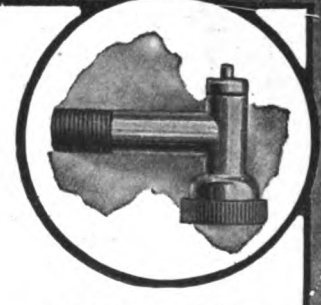
Ask your dealer to-day—and say "W & C."

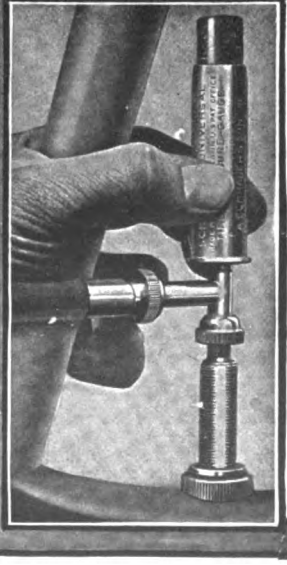
Some territory still open that needs live dealers. WRITE.

P. H. WEBBER COMPANY

HOCPESTON ILLINOIS

You can't tell how much Bengal Tiger there is in a white rabbit until you put him on a meat diet





.....and you can't tell how many miles your tires can give you until you put them on a REGULATED, MEASURED, air diet. Just so many pounds pressure, no more and no less.

If you pumped up your tires every time they fell below the pressure specified by the tiremaker, they would last for the maximum distance. Don't say pumping is too much trouble. With a

SCHRADER UNIVERSAL PUMP CONNECTION

it is no trouble at all.

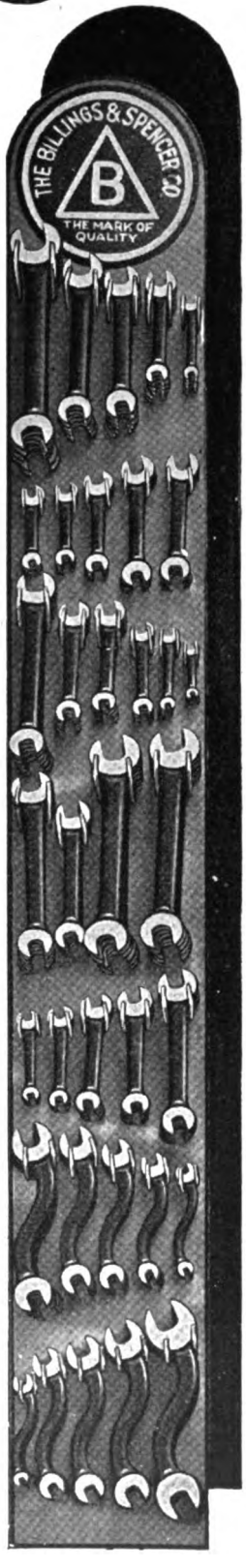
Ask your dealer to show you how it works.

Price Thirty-five Cents.

A. Schrader's Son, Inc.
783-803 Atlantic Ave.
Brooklyn, N. Y.

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TRADE MARK



How and where to purchase wrenches

WHEN purchasing wrenches, the one way to be assured of satisfactory returns and service from your investment is to look for the triangle trademark.

A complete assortment of these wrenches will be found on Billings & Spencer Wrench Boards, displayed in more than 6,000 hardware and motor accessory stores throughout the country.

There is no speculation in purchasing triangle trademarked tools. You are simply using what mechanics and engineers have relied upon for the past fifty years.

Every tool bearing the triangle trademark is unconditionally guaranteed. Look for this trademark.

Write for Catalog—34th Edition

THE BILLINGS & SPENCER CO.
HARTFORD, CONN. U.S.A.

AUTO BOOKS



NOW $7.20 LESS!

No car owner, chauffeur or repairman can afford to be without this brand-new automobile library. It is called **Automobile Engineering,** and in it will be found everything about modern automobiles. Almost two entire volumes are devoted to the new systems of ignition, starting and lighting. Welding, vulcanizing, and public garage equipment and operation are thoroughly covered. Five thick volumes, 5¾x8¼ inches, flexibly bound in genuine morocco leather, gold stamped, 2,400 pages; 2,000 illustrations, tables and diagrams. Written in simple, easily-understood English, and carefully cross-indexed for quick reference.

SEND NO MONEY

Don't send a penny. Just put your name and address in the coupon and we'll send all five volumes to you, shipping charges collect. Read them—study them—examine them carefully before you decide to buy. If you don't like them after 7 days—write us and we'll take them back. If you keep them, send only $2.00 within 7 days, and then $2.00 a month—**less than 7c a day**—until the low introductory price of $17.80 has been paid. The regular price of this set is $25.00, but you save $7.20 by buying now.

Partial List of Subjects

Motors, Welding, Motor Construction and Repair, Carburetors, Valves, Cooling Lubrication, Fly-Wheels, Clutch, Transmission, Final Drive, Steering, Tires, Vulcanizing, Ignition, Starting and Lighting Systems, Wiring Diagrams, Shop Kinks, Commercial Garage Equipment, Electrics, Storage Batteries, Motorcycles, Commercial Trucks, Steam Cars, Glossary.

FREE SERVICE

In addition to the books you get free of all charge a $12.00 Consulting Membership. If any question puzzles you—write us. Our corps of auto experts will solve your difficult problems. Ask all the questions you want for a whole year. This service is absolutely free.

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See these books before you decide to buy. Remember—don't send us a penny. Just fill in and mail the coupon. This offer is open to any person living within the boundaries of the U. S. and Canada.

AMERICAN TECHNICAL SOCIETY
Chicago, U. S. A.

American Technical Society
Chicago, U. S. A.

Please send me a set of **Automobile Engineering** for 7 days' examination, shipping charges collect. If I decide to buy, will send $2 in 7 days and balance $2 a month until $17.80 has been paid, when books and Consulting Membership will be mine. Otherwise will notify you and hold books subject to your order. Title not to pass until fully paid.

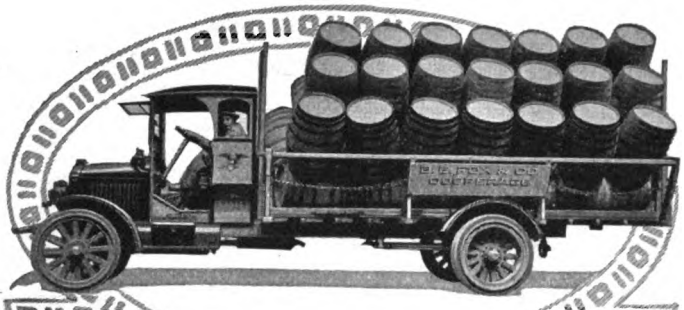
M. Wld., 12-12-17

Name .....

Address .....

Reference .....

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ARMLEDER
Motor Trucks

Experienced truck operators who know trucks and who have always bought them on quality are the readiest buyers of Armleders.

They value rightly the exclusive Armleder features of design; they appreciate the excellence of Armleder materials—they know by comparison how exceptional Armleder performance is.

We have interesting literature that gives you all the facts.

Two-Ton Worm-Drive
Three-and-a-Half-Ton

The O. Armleder Company
Twelfth, Plum and Charles Streets
CINCINNATI



Blankets won't help much if—

the oil you are using does not flow freely at Zero.

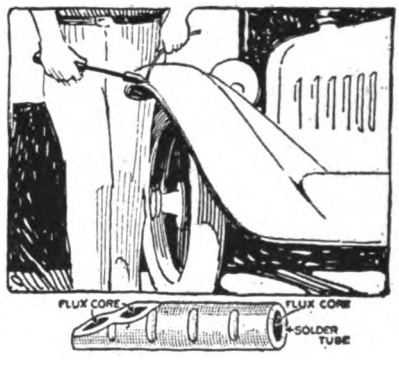
SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

This is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "Flows freely at Zero" and leaves less carbon, owing to the fact that it is a Southern Asphalt-base oil containing no paraffine to gum, stick or thicken.

MANUFACTURED BY
GULF REFINING COMPANY
The Largest Independent Refining Company in the World
General Sales Offices: Pittsburgh, Pa.
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Kester Crystal-Core Wire Soldor

is the most practical solder for automobile repair work. The solder is a hollow wire filled with an acid flux (see cut), which flows as solder is used. Cheaper to use than solid wire or bar solder, as it eliminates preparing, hunting for, or applying the acid-flux.



Cleaner, Neater, Quicker

For spark plug and battery terminals, electric light connections, cracked fenders, gasoline pipe and tank joints, radiator leaks, speedometer flexible shaft, and the general garage uses.

Sold in one pound coils and on one, five and ten pound spools.

Ask your jobber to supply you.

CHICAGO SOLDER CO.
CHICAGO ILLINOIS

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WILLIAMS'

SILVERBEAM SEARCHLIGHTS SELL

More readily than lower priced lamps when side by side on the dealer's counter, because they are

HANDSOME—Designed on beautiful lines, in harmony with the refined fittings demanded in the modern motor car.

WELL MADE—Superior workmanship showing at every point. Anti-rattling, heavy plating, baked enamel, connections complete.

PORTABLE—Readily detached to serve as trouble lamp—ten feet of cord gives easy access to every part of car.

LAW COMPLYING—The Williams locking bracket guards against infraction of laws regulating elevation ahead.



SILVERBEAM

$9.00 Baked enamel and nickel, in black or colors, convex lens, 6-inch reflector. With 7-inch reflector $10.00

Proven by three years' satisfactory service

Liberal Dealer Discounts

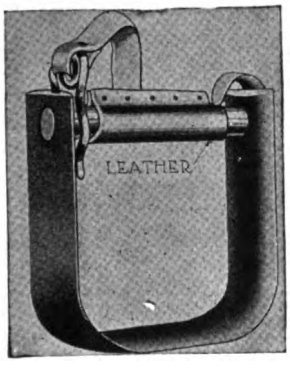
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Williams Mfg. Co.

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BETTER TRACTION FOR TRUCKS

Maximum Grip



Minimum Bump

WOODWORTH

EASYON SOLID TIRE GRIP

They save the tires and do not jar the machinery

EASYON SOLID TIRE GRIP

The Easyon Solid Tire Grip is made from half oval steel U-shaped to fit over the tire and rim and having a round leather covered bar across the rim of the wheel, which is locked in place with a spring pin. The rounded side of the half oval steel comes next the tire and thus a perfectly smooth, even surface bears on the rubber. The leather covering on the round bar across the felloe of the wheel prevents danger of the wood being marred.

When run on pavements the round bar raises up from the felloe of the wheel so that no bumping is caused, but when the wheel begins to slip on the road the round bar pulls up against the spoke and the grip assumes a slanting position so that one edge projects from the tire, taking a deep hold in any soft road surface.

Made for all sizes of single or dual tires.

Dealers and Jobbers, write for proposition.

WOODWORTH MFG. CORP'N

Niagara Falls New York



25¢ each

Bridge Ignition Troubles

It's the *span* of a bridge that usually gives way first. Rarely the abutments fail. Just so with the ignition system. The heretofore-overlooked *link between* the source of energy and the plug—the plug *connection*—generally causes your ignition troubles. The

HANDY TERMINAL

eliminates this last source of trouble. Every iota of power reaches the plug. Instead of working loose—instead of impeding the flow of current—vibration and jar make the jaws of the HANDY set firmer. Particles of foreign matter cannot work between the jaws. The electrical contact cannot be broken. You get a vise-like action that insures permanency.

The jaws of the HANDY are threaded on the inside. These threads engage the threaded center bolt of the plug. Pulling up on the ring with the first and second finger (see illustration) compresses the spring—the jaws release their hold. Reversing the action clamps the jaws again. No nuts to loosen or tighten—nor fish out of the drip pan. No tools required.

The magneto cable is fastened by a ferrule—gripped permanently. The stripped wire is held by a copper clip. The unsoldered connection can't work loose.

The HANDY is the last word in convenience. Three sizes to fit every make of plug.

DEALERS—An accessory without competition. THE accessory with the selling balance—moderate price—national advertising—a real convenience—good profit. It will prove to be one of your best winter sellers. If your jobber can't supply you, send us his name. Your requirements taken care of as promptly as we hope to hear from you.

THE FRANCIS-RAND CO.

Manufacturers of

HANDY PRODUCTS

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District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available about Jan. 1. Established business with jobbers and garages awaits a few high grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.



Mean More Power

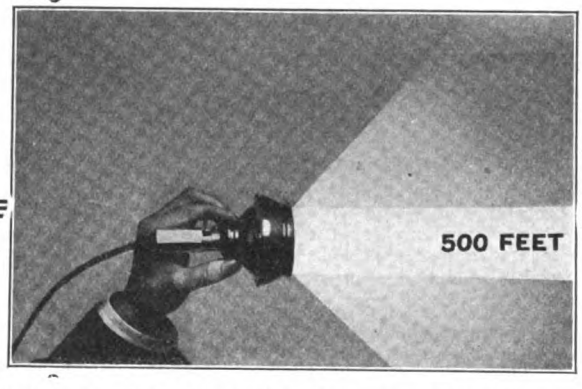
Cheap Valves warp, cause loss of power, loss of compression, difficulty in starting, reduction of mileage.

It pays to be *sure* of your valves.

Lewis special heat-treated valves make users of ordinary common valves literally "sit up and take notice." Lewis has learned the secret of making better valves by concentration and specialization—that's why Lewis Valves are better.

There's more to valves than some people think—would you like to know? Write Lewis.

Lewis Electric Welding & Mfg. Co.
TOLEDO, OHIO



The CELLBEAM Concealed Spot Lamp Solves the Searchlight Problem

This compact electric searchlight is an exceptionally powerful projector of both spot and diffusive illumination. The concentrated beam of projected light extends 500 feet, while objects close at hand are illuminated by a diffusive glow of indirect and transmitted light, devoid of the annoying direct filament glare.

As a light accessory of style and convenience, strictly complying with the law, pertaining to the utmost in safety, the CELLBEAM SEARCHLIGHT represents the newest optical development. (Pat. November 6th, 1917, No. 1245512.)

This advanced art in motor illumination provides not only a powerful main beam, but a non-glare general illumination as well.

Furthermore it is no longer necessary to clamp a projector to the wind shield thru some fanciful bracket. The precise dimensions of the CELLBEAM are such as to permit the concealment of the lamp in the side door pockets of an automobile. Wiring is as usual, to the battery cells, following the door hinges of the car.

All lamps are hand patterned to steel dies; finished in polished nickel; silvered reflectors; high grade switch included in handle; external focusing adjustment; five feet flexible cord; standard 6 V. nitrogen bulb. Other voltage to fit any electric current source supplied upon request.

Lamp in Every Respect Complete
Price $8

CELLBEAM MANUFACTURING CO.
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Schutte
SPORT BODIES

ARE BUILT
TO FIT ANY MAKE OF CAR
"MILITARY SPORT MODEL"
Popular Among Officers

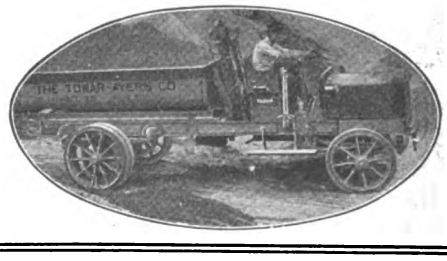
Schutte
DISC WHEELS

INCLOSURES
FOR ANY STYLE OF
"WOOD OR WIRE WHEEL"
Patent Applied For

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UNITED TRUCKS
2-TON 3½-TON 4-TON 5-TON

Immediate deliveries mean *additional* profits! Wire us your requirements and for option on your territory.



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Tuthill Titanic Lubricated Springs

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(Established 1880)
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With Handle and Hook to Hold It

With the new hook that operates on a swivel base you can hang the PRESTO Heater practically anywhere beneath the hood. With the new handle, you can move or hold it easily though still hot. Improved throughout. Better than heating the whole garage, and cheaper. A big seasonable seller. Your jobber has it. Ask him.

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—teaches you the *principle* of all engines, valves, carburetors, ignition, self-starters — in fact, everything you want to know.

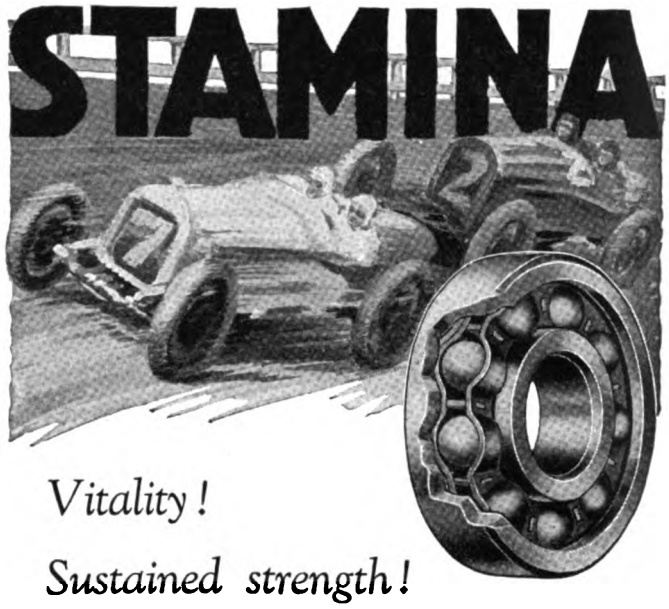
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TWO UNIT SIX VOLT

Conforms more closely to Ford engineering and construction than any other electric starting system ever sold.

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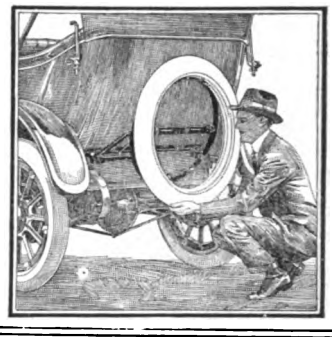
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When you do, you want it over as quickly as possible. The Inter-State Tire Carrier gives you the most convenient method of handling the spare tire.

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To keep weight of car off tires when not in use. The part which comes in contact with the car is made of wood and cannot injure paint.
Easily adjusted to any height wheel. Jack is easily raised and lowered and allows car to stand firmly. Footrest 5 x 8.

Made from best screw polished round steel half-inch diameter. Finished in black enamel. Set of four, weighs 24 lbs.

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BOTHER
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The most dependable defense ever devised against danger and damage is provided in
HIGGINS QUALITY SPRINGS—For Replacement
Guaranteed alike at all points. Made without center bolt or hump. Possess resiliency that protects car. Sturdy strength that gives longest wear. Safest to order for own use. Most certain to satisfy customers.
Splendid discounts to dealers. Immense demand. Write for discounts and catalog 1917.
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"1000% Better Than the Next Best," Says One Jobber

SPLENDOLA is a body finish that never fades. Has the staying qualities of paint or varnish. Not a polish—not in competition with one. Sells fast wherever introduced because it gives results that last.

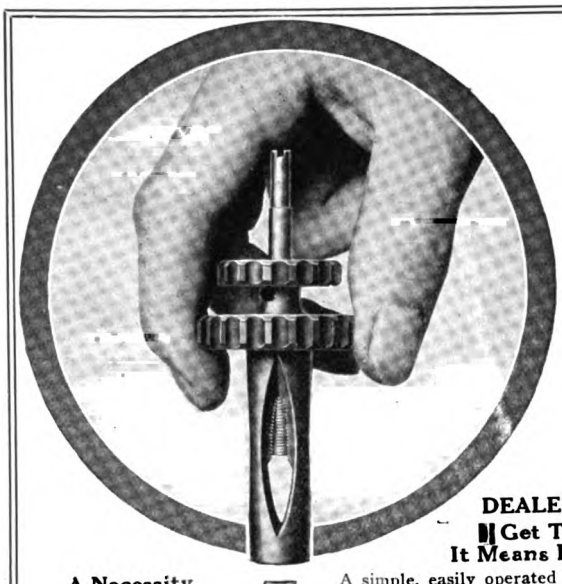
All SPLENDOLA Products sell—backed by an advertising campaign that makes representatives succeed.

Dealers, Jobbers, District and State Representatives write for details. **Immediate action essential.**

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DEALERS—
Get This
It Means Business

A Necessity
They move quickly at
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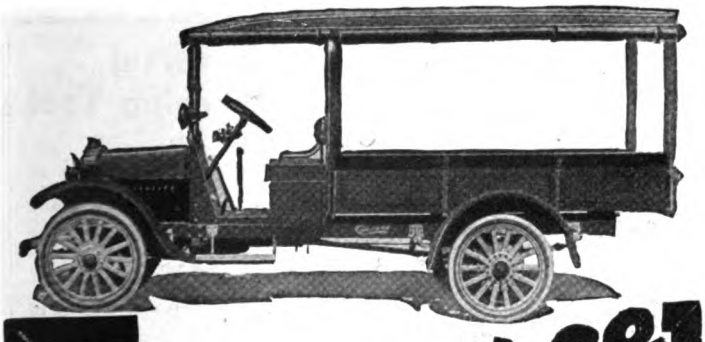
A simple, easily operated instrument with which the worn, irregular threads of the tire valve can be quickly recut.

A&H True Threader Valve Tool cuts both inside and outside threads of the cap stem and plunger at the same time and insures perfect alignment. Recutting threads stops leaking at the valve, which is the cause of a large percentage of tire trouble. Endorsed by all the leading tire Co's. Adopted by Miller, Firestone and U. S.

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may be greatly relieved in your garage repair shop by installing a

Richards-Wilcox Overhead Trolley System

for lifting and carrying heavy parts, such as transmissions, rear axles, engines; and for raising trucks and touring cars on end so that workman may conveniently work underneath.

If all you need is a stretch of Overhead Trolley Track, perhaps a curve, a hanger and a hoist, we can supply a system in accordance with your requirements. Our Engineering Department will furnish plans for erecting an R-W overhead carrying system adapted to your particular purpose.

"Overhead Carrying Systems," published by the Richards-Wilcox Manufacturing Company, contains detailed information regarding Overhead Carrying Systems for various conditions. Sent without obligation.

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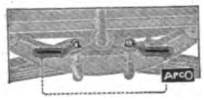
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90 000 Springs. 588 Types.

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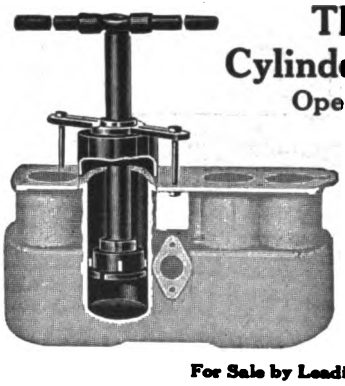
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Are getting the business because the people who own cars like to see what they pay for.

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Operates on Any Car

Rebores cylinder from start to finish without slightest taper, and perfectly round. Automatic and quick in action. Takes as much as 1/16" oversize in one operation, and completed job will be a smooth finished and true to 1/1000 of an inch.

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Write for free illustrated literature and details.

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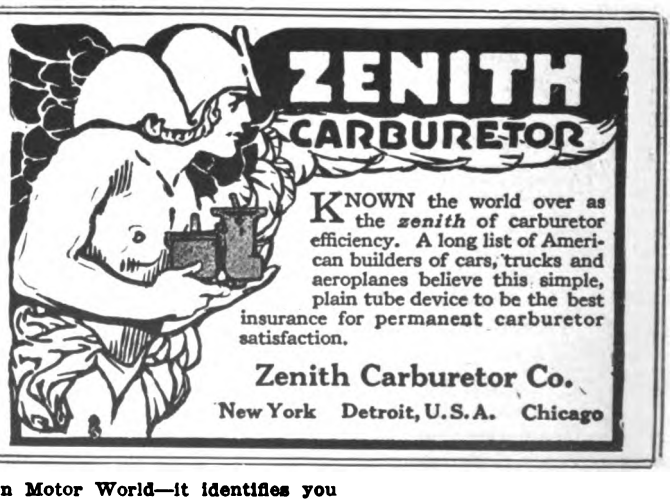
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MARMON 34

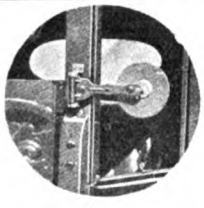
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AS for comfort, the Marmon design accomplishes with 136-inch wheelbase what would require a wheelbase 10 or 12 inches longer if the usual method of construction were followed.

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Yours for Bigger Winter Business

The perfect mirror for the closed car. Simple, strong, finely finished—lens or plain plate glass mirror—easily adjustable to any angle.



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For Cabriolet, Brougham, Coupe, Sedan and Limousine.

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are made for all types and makes of cars. Their fine quality, simple construction, handsome appearance and efficiency in service make for quick sales and ready profits.

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"Dependable Delivery"

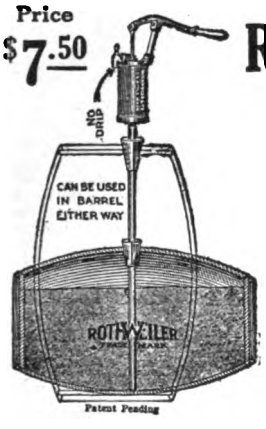
$1245 1¼ Ton Chassis	$1305 1¼ Ton Complete with body and cab
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Rothweiler Pump

Empties a Barrel or Drum Completely

No Waste *No Drip*

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Works Easily, Quickly and Efficiently

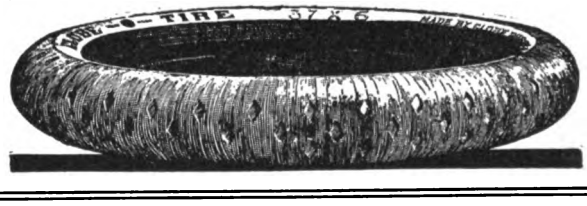
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GUARANTEED 6000 MILES
REDUCE THE OPERATING COST OF YOUR CAR

Long Mileage Tires MUST Be Hand Made

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The "Big Stick" That Brings Down Gasoline Expense

Up goes the price of gasoline! Maximum mileage is the big problem of the day! Solve it with the New Stromberg Carburetor.

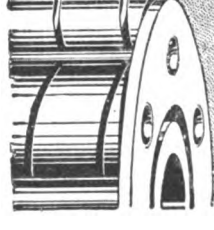


The official world's records made by the New Stromberg in gasoline mileage prove that you need the New Stromberg on your car. Mail coupon for details of how the New Stromberg will reduce your gasoline bills.

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HYATT QUIET
-the logical bearing



for Motor Cars Motor Trucks and all Motor Vehicles

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AUTOMOBILE FABRICS

A Fabric for Every Purpose for Open, Closed, and Convertible Bodies

DETROIT BATTERIES

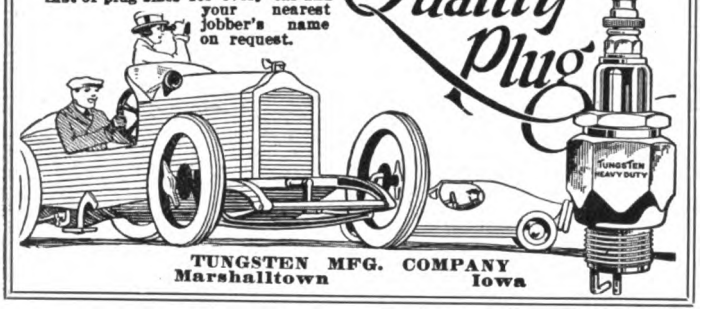
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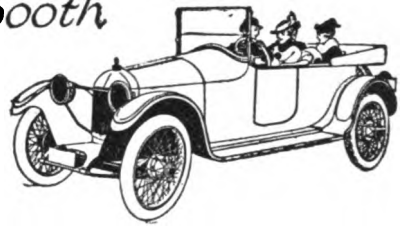
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List of plug sizes for every car and your nearest jobber's name on request.

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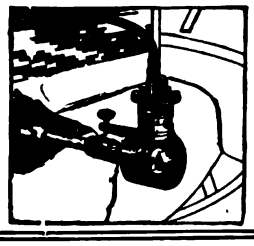
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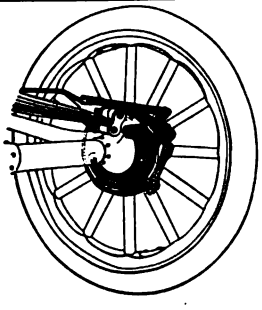
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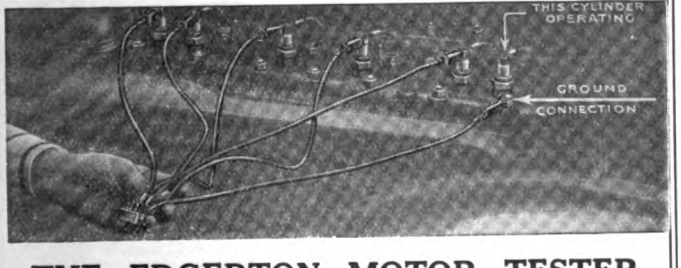
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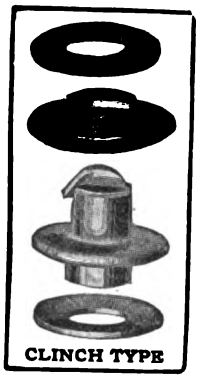
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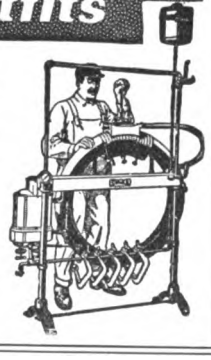
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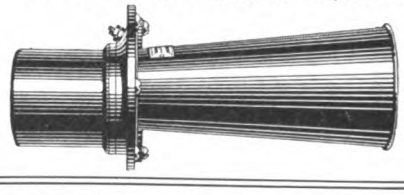
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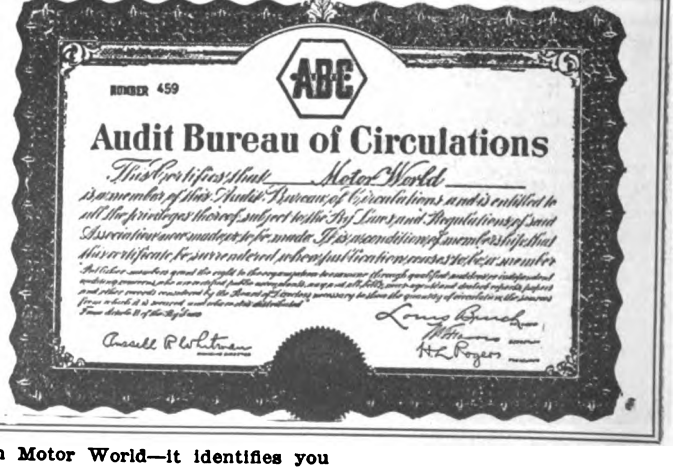
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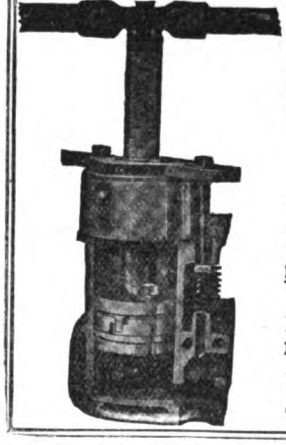
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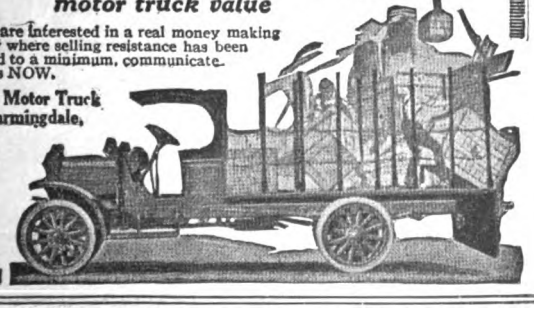
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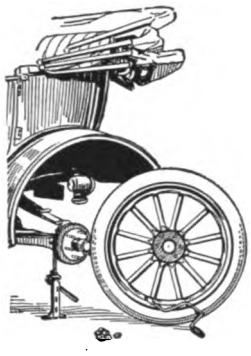


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Sole Manufacturers of Non-Gran and Largest Exclusive Manufacturers of Bearing Bronze in the World



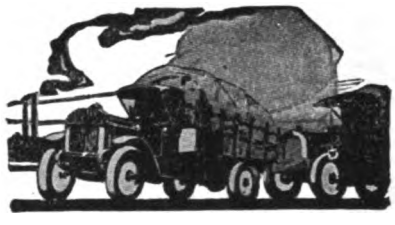
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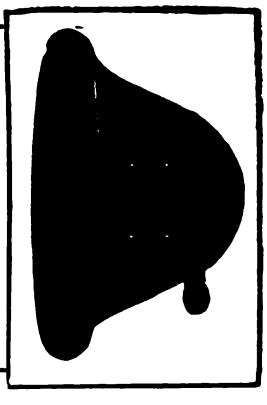
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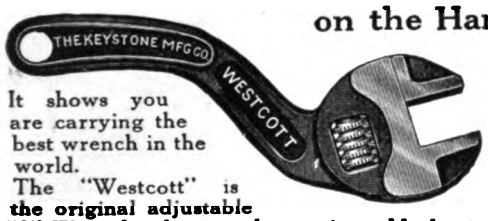
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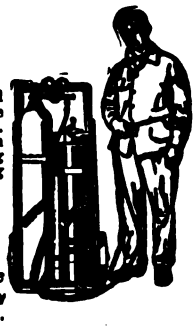
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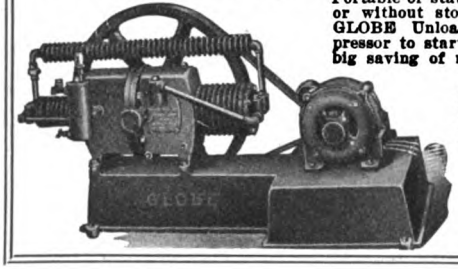
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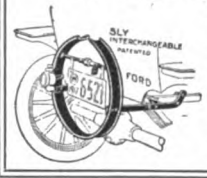
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5000 MILE SECONDS

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BEST VALUES ON THE MARKET—A Trial Order Will Convince You

Size	Plain	Tubes	Size	Plain	Tubes	Size	Plain	Tubes
28x3	$7.00	$2.00	32x4	$14.00	$3.35	35x4½	$21.45	$4.20
30x3	7.00	2.00	33x4	14.50	3.50	36x4½	22.00	4.30
30x3½	8.75	2.30	34x4	15.00	3.65	37x4½	22.80	4.60
32x3½	10.50	2.45	35x4	15.85	3.75	35x5	23.10	4.65
34x3½	11.50	2.70	36x4	16.20	3.85	36x5	23.95	4.75
31x4	13.75	3.20	34x4½	20.35	4.15	37x5	24.20	4.95

Add 10% to the above prices for non-skid tires

Order today—$1 deposit required. Tires shipped by return express subject to examination. Specify whether Q. D., Clincher or Straight Side Rim.

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GIANT TIRES

A tire which successfully meets all competition—a trade builder and a profit maker.

It meets the needs of the man who wishes to economize on tire costs.

THE GIANT TIRE offers an unequalled proposition for the live dealer, being rebuilt from high-grade carcasses by tire specialists using fine materials.

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Thousands of autoists are solving the problem of keeping down their tire expense by the use of GIANT TIRE SHIELDS. This inside reinforcement, which extends from bead to bead all around the tire, offsets the increased cost of tires by prolonging the life of the tire in which it is used.

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Write today for complete details of our proposition to dealers.

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Tires, Tire Shields, Tire Repair Kits, Accessories FINDLAY, OHIO

Tires.

Real Tire Bargains

Our tires are new, fresh stock which have only slight surface blemishes, which do not affect their wearing qualities. We can not furnish a mileage guarantee at prices quoted, but every purchaser must be a satisfied customer.

Size	Plain	Non-Skid	Tubes
30x3	$ 6.75	$ 8.25	$2.20
30x3½	8.75	10.75	2.50
32x3½	10.50	11.75	2.80
34x3½	12.75	13.50	3.00
31x4	13.75	15.25	3.25
32x4	14.25	15.75	3.35
33x4	14.75	16.00	3.40
34x4	15.50	16.50	3.60
35x4	15.75	17.00	3.75
36x4	16.50	18.00	4.00
34x4½	21.00	24.00	4.50
35x4½	21.50	25.00	4.50
36x4½	21.75	24.00	4.75
35x5	23.00	25.00	5.00
36x5	23.50	26.50	5.50
37x5	25.00	26.75	5.75

TUBES GUARANTEED

All goods shipped promptly. $1 deposit required with each tire order. Balance C. O. D. subject to examination.

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Used Tires, All Standard Makes

We are handling only standard make tires that have been guaranteed for 3500 to 5000 miles. Some of them do not need to be repaired, others do, which we renovate thoroughly and strengthen every weak spot. Satisfaction guaranteed.

Size	Used Tire	Size	Used Tire
30x3	$3.00	35x4	$7.00
30x3½	4.00	36x4	7.00
32x3½	4.50	34x4½	7.50
31x4	5.00	35x4½	7.50
32x4	5.50	36x4½	7.00
34x3½	6.00	37x4½	8.00
33x4	6.00	35x5	8.00
34x4	6.00	36x5	8.00
		37x5	8.00

10% EXTRA FOR NON-SKIDS

SPECIAL:—4—40 x 4½. Almost New

Goods shipped C. O. D. on receipt of 25% of the order; 5% off when cash accompanies the order.

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Adjustments made on mileage basis of 30 miles to 60 miles per day, depending on size of tire.

Tires	Non-Skid	Tubes	Tires	Non-Skid	Tubes	Tires	Non-Skid	Tubes	Tires	Non-Skid	Tubes
28x3	$7.25	$1.80	30x3½	$9.85	$2.15	31x4	$14.35	$2.95	33x4	$15.75	$3.10
30x3	7.60	1.90	32x3½	11.55	2.25	32x4	14.75	3.05	34x4	16.55	3.20

All orders must be accompanied by Deposit of at least 25% in order to receive immediate shipment.

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Dept. X, 1432 MICHIGAN AVENUE CHICAGO

Popular Priced Tires

VARIOUS MAKES

Factory Firsts and Seconds

Size	Plain	Non-Skid	Size	Plain	Non-Skid
28x3	$6.45	$7.45	35x4	$13.95	$15.45
30x3	6.95	7.95	36x4	14.95	16.00
30x3½	8.45	9.45	34x4½	17.45	19.45
32x3½	9.45	10.40	35x4½	17.95	19.95
31x4	11.95	13.10	36x4½	18.45	20.45
32x4	12.45	13.45	37x4	18.95	20.95
33x4	12.95	14.00	35x5	19.95	22.45
34x4	13.45	14.45	37x5	20.95	23.75

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RELIABLE USED TIRES

ALL STANDARD MAKES

Remember This: These tires were originally guaranteed for 3000 to 5000 miles. Many have gone less than 600 miles. It does not take much figuring to see the mileage they are still good for. You will save money on your tire mileage. Offered at these remarkably low prices while they last:

28 x 3	$2.75	36 x 4	$7.50
30 x 3	2.85	33 x 4½	8.00
30 x 3½	3.95	34 x 4½	8.00
32 x 3½	5.00	35 x 4½	8.00
34 x 3½	6.00	36 x 4½	8.00
31 x 4	5.00	37 x 4½	8.50
32 x 4	5.50	35 x 5	9.00
33 x 4	6.50	36 x 5	9.00
34 x 4	6.00	37 x 5	9.00
35 x 4	7.00	38 x 5½	12.50

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Auto Specialties

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Wonder Worker Self-Curing Mohair Top Patches. Quickly and permanently repairs holes, leaks and rips in mohair tops. Absolutely waterproof.

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COTTER TYPE
Transmission Chain
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No other detachable type approaches the "Whitney" in popularity



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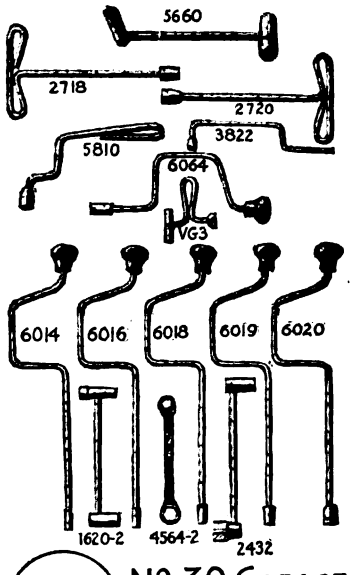
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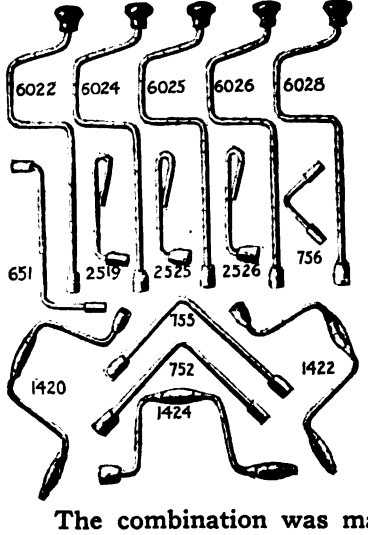
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No. 30 GARAGE SERVICE Sets



WALDEN WORCESTER WRENCHES

Nº 30 GARAGE SERVICE SET



A WRENCH combination perfectly adapted for work on any motor car, with which time and labor cost to the customer may be economized, and the productiveness of the shop and its facilities largely increased.

These are special tools, designed after careful study of garage service, each serving a specific purpose and having qualities necessary for thoroughly good work.

These 30 wrenches, some with two sockets, are equivalent to 39 different sizes and types, as follows:

Offset Wrenches	13
Speed Wrenches	10
L-Wrenches	6
Special Wrenches	5
Demountable Rim Wrenches	3
Tee-Handle Wrenches	2
Total	39

The combination was made to fit all popular makes of cars—to work wherever particular type wrenches are necessary. Every condition that makes for economy and time saving has been anticipated and utility provided for.

With the No. 30 Garage Service Set you will have every wrench you will need. Your equipment will be standardized. The quality of work insured.

List Price, $20

Walden-Worcester
INCORPORATED
Worcester, Mass.

WALDEN WORCESTER WRENCHES

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Sign of a Satisfied Dealer

WHERE you see a Firestone Sign you find a contented dealer. His customers are happy. His business is booming. He is receiving thorough-going selling co-operation. Firestone Tires satisfy dealers because they satisfy customers. Cord or Fabric, they meet the most severe conditions successfully. The dealer knows this; no one better. He knows, too, that sales helps are at his call at any time. Whatever his local conditions, there's a Firestone selling plan to meet them.

Attractive advertisements, booklets, folders and magazine "Milestones," carrying the dealer's own advertising; these selling aids establish a business firmly.

DEALERS: If you do not know the Firestone proposition, write for it. Good for your customers. Good for you.

FIRESTONE TIRE AND RUBBER COMPANY
Akron, Ohio Branches and Dealers Everywhere

Firestone

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MOSSBERG TOOLS

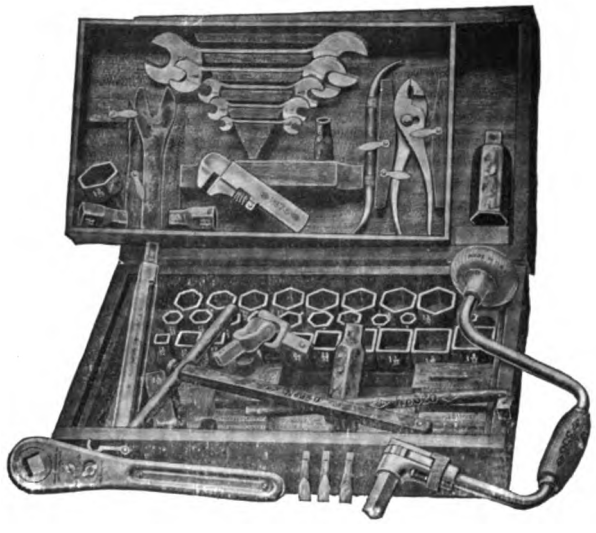
FOR EFFICIENCY and EVENTUAL ECONOMY

Thoroughly Dependable and Guaranteed Absolutely

MOSSBERG SOCKET WRENCH SET No. 14

For making repairs and adjustments in the best, quickest, and easiest manner. A glance at the contents explains why this most complete set "speaks for itself." The set contains Reversible Ratchet Wrench, Offset Handle, Takedown Handle and Extension Bar, Pipe Wrench, Pliers, Five D. E. Wrenches, with milled openings ¼" to 1", Cotter Pin Puller, Universal Joint, Screw Driver Bits, Three Special Spark Plug Sockets and Thirty-four Guaranteed ◆ Pressed Steel, Square and Hexagon Sockets, graduated by 32nds, from 5/16" to 1 9/32". No. 14 Set.

Price $13.50



DEALERS' DISPLAYS—Just the wrenches that sell—Just the way to sell them.



"R" Board for FORDS

Ten different Ford Necessities of Mossberg manufacture that the Ford owner just naturally must have. Consists of 27 Tools that list for

$12.00

Mossberg's "T" Board

An attractive article in itself, it displays 23 unbeatable ◆ adjustable wrenches. A good profit is made, as they list for

$13.00



"T" Display Board



"X" Display Board

Exhibits Single End, Double End and "S" Wrenches; Adjustable Wrenches, and Pliers.

No. 300 Socket Chest.

Contains 300 Regular ◆ Guaranteed Pressed Steel Sockets, Assorted. besides Reversible, Offset, and Takedown Handles, Extension Tubes, Universal Joints, etc. A dandy finished fixture for supplying a positive demand.



No. 300 Socket Chest

You know the firm. Get acquainted with its products. See Catalog 191-1

FRANK MOSSBERG CO., ATTLEBORO, MASS. U. S. A.

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DENBY MOTOR TRUCKS



November 27, 1917.

Garvin Denby, Esq.,
President Denby Motor Truck Company,
Detroit, Michigan.

Dear Mr. Denby:

As you know, we are inclined to pride ourselves on the success we have had in the retail sale of trucks, but we believe that the big success in retail selling comes from contact with the other fellow.

We realize very fully that we do not know it all, and that there are without doubt a number of Denbymen in other sections of the country who could give us some very valuable pointers. We might, in turn, be able to be of some help to them. This, of course, is in line with the principles of mutual help and cooperation which we have found to dominate the entire Denby organization.

What we are getting at is this: Whenever a Denby dealer comes to the factory, won't you please ask him to stop in at our showrooms, 973 Woodward Avenue, and have a regular visit. We are frank to say that our motives in suggesting this are largely selfish, because we expect to get a great deal of good out of the exchange of ideas, and we are out to break on Denby trucks all our past selling records. But we shall certainly try to give every Denbyman who visits us full value in exchange, and we feel sure that some of our own experiences will be helpful to them.

Very truly yours,

J. B. Hance

Sales Manager,
THE TOWAR-AYERS COMPANY.

This strikes one as an excellent idea. The G. R. Co have sold better than a truck per day for nearly two years. Their experiences should be valuable to others. Please give it the widest possible publicity.
Garvin Denby

DENBY MOTOR TRUCKS are made in 1 to 5 Tons capacities

Denby Motor Truck Company
Dept. F
Detroit, Michigan

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MOTOR WORLD

for

DEALERS, JOBBERS AND GARAGEMEN

Volume LIII
No. 12

New York, December 19, 1917

Ten cents a copy
Two dollars a year



Strom
BEARINGS
FORMERLY U.S. BALL BEARINGS

The name that epitomizes the highest standards of ball bearing design and manufacture

U.S. BALL BEARING MANUFACTURING CO.
Chicago (conrad patent licensee) Illinois

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Van Sicklen

ELGIN

SPEEDMETERS

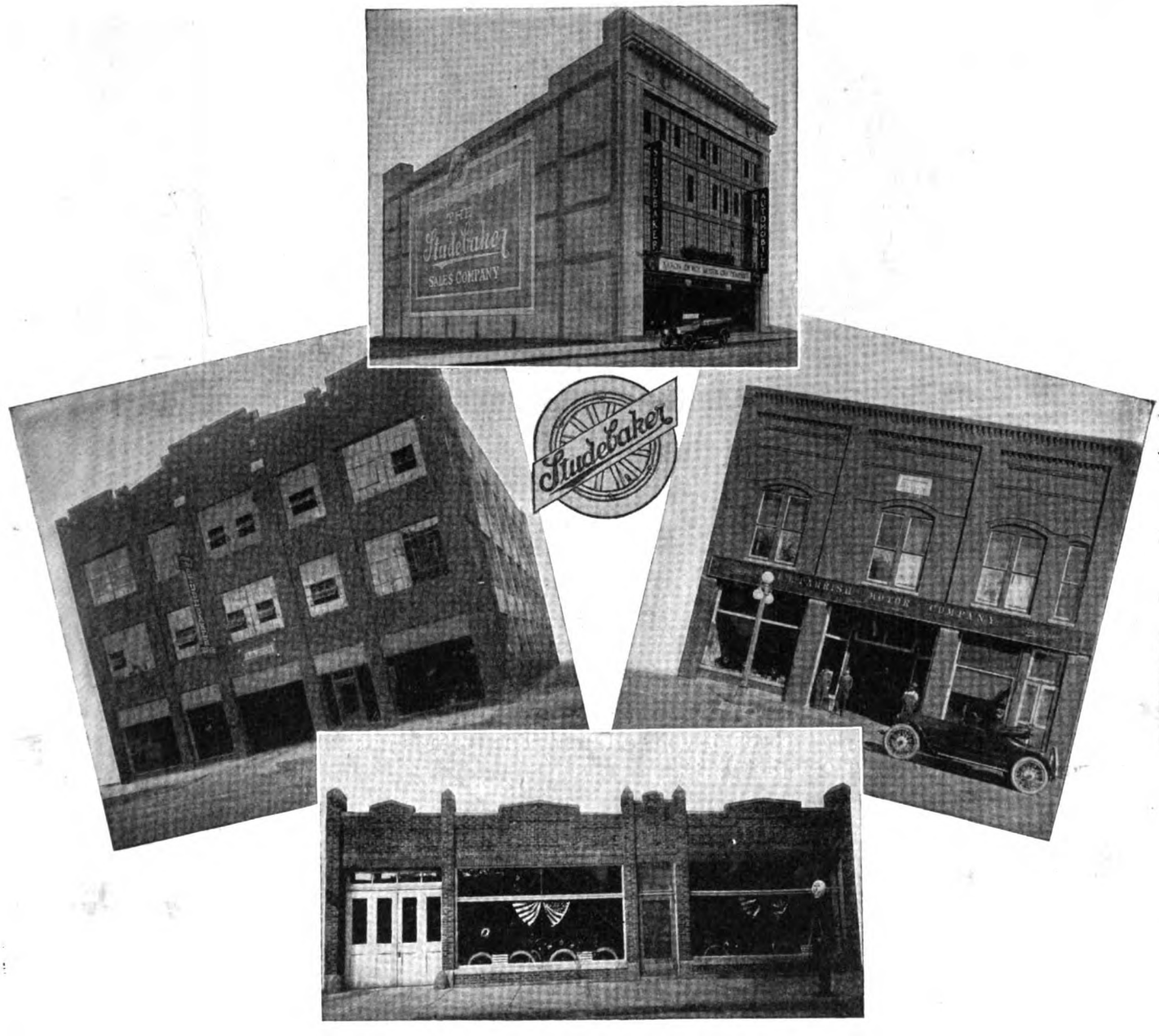
A standard among speed-recording instruments as the Elgin watch is a standard of timekeeping.

Reliability and accuracy distinguish them both.

The Van Sicklen Company, Elgin, Ill.

Factory—Elgin National Watch Company

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HERE are four typical buildings among the many which have been erected by Studebaker dealers in all parts of the country during the last few months.

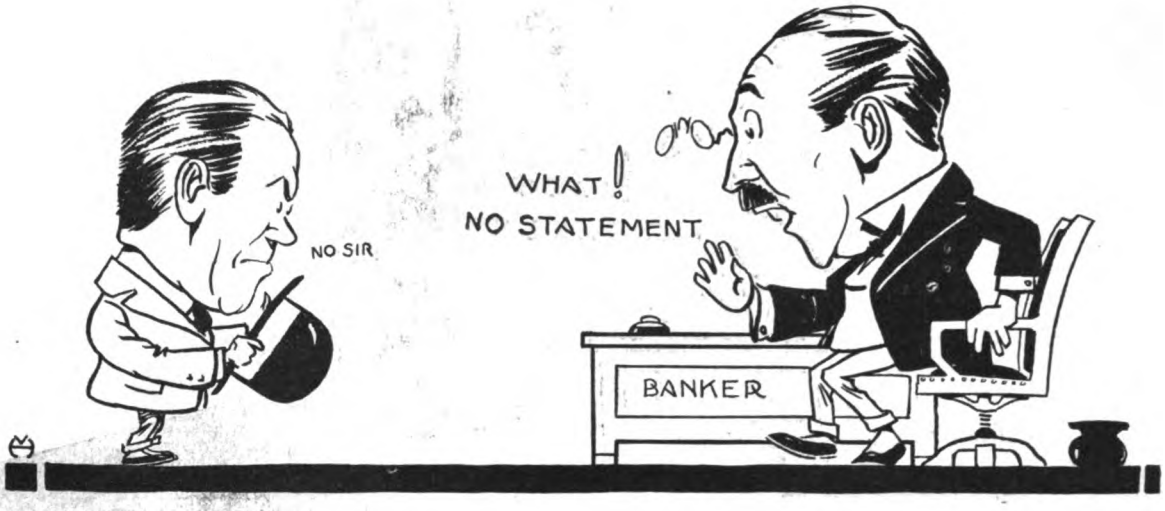
Such building activity evidences the solidity of Studebaker dealers, the prosperity which has come to them through the sale of Studebaker cars and their faith in the future of the automobile industry and in the continued pre-eminence of Studebaker.

STUDEBAKER

Detroit, Mich. South Bend, Ind. Walkerville, Ont.

Address all Correspondence to South Bend

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What Sort of a Statement Could You Make to a Banker?

When you, Mr. Dealer, go after a loan, you meet a man who makes a business of lending his stockholders' money.

The first thing he wants to see is *a statement from your books*—he doesn't loan money on talk.

Have you *full* records of your affairs? The form is not so important as their completeness.

As you grow, you will need more capital. Banks are organized to help you. The little man—whose business is sound—is just as welcome as the big man.

These are busy times with all of us. It's easy to overlook charges. Don't trust to your memory.

If you can't afford a bookkeeper on full time, find one who can give you an hour or two a week—evenings.

Go over your charges with him. He'll make you keep an eye on what you owe, as well. You will find that such help always pays its way—and a lot over.

Don't delay. The accounting system is the backbone of your business.

Short Accounts Make Long Friendships

Send for your copy of our Booklet—by an expert—on "How to Run a Garage."
Manufacturers, Jobbers and their Salesmen are anxious to co-operate with you. Ask them for ideas.

THE NATIONAL ASSN. OF AUTOMOBILE ACCESSORY JOBBERS MEMBER

National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BLDG. CHICAGO, ILL.

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

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A. B. Swetland, General Manager

Business Department
Charles B. Shanks, Manager

Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
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"NORMA"

BALL BEARINGS

(Patented)



The "nerve centers" of the car and truck—so may be defined the ignition and lighting apparatus. Weakness, inadequacy, at these centers reacts throughout the machine. Failure at these points means a failure of all the nerve-controlled functions of the car or truck. Can a car, truck, or man show "stamina," with an inherent weakness at the nerve centers?

"NORMA" Ball Bearings, by their superlative speed qualities and proved serviceability, contribute mightily to the rugged strength and service capacity of those high-grade magnetos and lighting generators which are the "nerve centers" of all cars and trucks of proved dependability.

Be *sure*. See that your Electrical Accessories are "NORMA" Equipped



THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK

Ball, Roller, Thrust and Combination Bearings.

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Selden Trucks

IN·BUILT QUALITY · SELDEN · MOTOR TRUCKS



Selden Accomplishment

SELDEN TRUCKS have checked waste and increased profits in many industries. Their big, powerful construction, low fuel consumption and low upkeep cost have enabled them to accomplish unusual feats of endurance at rock bottom cost to the user.

for instance

South Bloomingville Hill in the southeastern part of Ohio is considered to be the worst hill in the state over which to transport a load. Frequent washouts and protruding rock ledges make the roadbed of this hill very uncertain. The average grade is 7½ percent for about eight-tenths of a mile; and in stretches of 200 feet or more the grade ranges from 16 to 18 percent. The hill is about 4600 feet from base to summit.

For years the only method of transporting a load over this hill was by horse or ox-driven vehicle—until a big, powerful five ton Selden Truck came along, carrying a five ton load of gravel, and climbed over this *worst hill in the State of Ohio* without a sign of a struggle—and still more remarkable—without even heating the motor.

Accomplishments such as this are frequent accomplishments of Selden Trucks—for they are built for the big jobs.

Light Delivery, 1, 2, 3½, 5 Ton Worm and Internal Drive Models. Write for full information on the model that will effect economies in your business.

DEALERS: *Write for your territory before it is closed.*

Selden Truck Sales Company

Rochester, N. Y., U. S. A.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIII New York, U. S. A., Wednesday, December 19, 1917 No. 12

Why Does He Smile?



The Trade Acceptance is— Better read the story on the next two pages.

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Use Trade Acceptances

It is highly probable that within a few years the whole business world will be using the trade acceptance. It is a good thing. Why not, then, get busy right away and have the plan adopted in the motor car business? If it's coming, why delay it? Set aside your objections. Realize the advantages. Learn ALL about this new form of business paper and accept the acceptance as desirable and right business practice.

LAST week one evening the jobbers of New York, Brooklyn and Newark and a few from Philadelphia met at the Hotel Astor, New York, to consider the trade acceptance, a new form of business paper that has the approval of the government.

The acceptance was explained by E. B. Heyes of W. & J. Sloane, a big New York wholesale house, which has found the acceptance desirable in practice.

The jobbers named a committee to submit a plan for putting the acceptance into effect.

The acceptance has been discussed and explained in previous issues of Motor World. Briefly it is this:

It is a small piece of paper—illustrated with this story—that looks like a cross between a check and a note. It amounts to this: When the seller of goods sends his bill, which is generally a monthly statement, he attaches a trade acceptance. The buyer of the goods signs across the face of this acceptance.

Buyers Pay Bank

The buyer then pays his bill to the bank instead of to the seller of the goods on whatever date is specified in the acceptance. The credit period specified in the acceptance is optional with the seller, just the same as are his present terms of credit. The acceptance may be for 30, 60 or 90 days, but in the motor-car trade would be from 30 to 60, the customary terms.

Meantime the seller has the acceptance. He can hold it until near the maturity date and cash it through the buyer's bank, or he can cash it at once at a discount at his own bank. His own bank then sends it along, through a Federal Reserve Bank and the latter cashes it on the maturity date at the buyer's bank.

To illustrate: Supposing that the Smith Jobbing Co. sells goods during December to the Central Garage amounting to $100. Jan. 1 Smith would send its regular monthly statement to the Central Garage, just as it is doing at present.

Attached to the statement would be a trade acceptance made out for the amount of the statement, $100. The acceptance would also specify that the $100 should be paid 30 or 60 days from date, either Feb. 1 or March 1, according to whatever terms Smith adopted under this plan.

Can Do One of Two Things

Now, the Central Garage could do one of two things. It could pay the bill within ten days and take its cash discount of 2 per cent. In that case the acceptance would not figure in the deal at all.

Or, the Central Garage could write its signature across the face of the acceptance and send it back to Smith, writing also upon the acceptance the name of the bank patronized by the Central Garage. The deal would then be closed so far as the Central Garage was concerned until the date of payment. At that time —Feb. 1 or March 1—the bank would receive the acceptance and would make the settlement with the Central Garage.

After the Central Garage sent the acceptance back to Smith he might want to use the money. Without the acceptance he would have $100 of his money tied up in an open book account. His cost of doing business would be higher. His financial condition would not be so good. He would need an added $100 of capital to carry this account for the credit period. But with the acceptance he can go to his bank and get the $100 less, say, 5 per cent. He can have $95 now instead of waiting 30 or 60 days for $100.

This helps the jobber and doesn't hurt the dealer. Rather, it helps the dealer too. He becomes a part of a highly efficient business system. Let us cite a few of the advantages to the dealer, as explained to the New York jobbers by Heyes:

Advantages to the Dealer

1—Supposing the dealer's credit with the jobber is $500. Supposing the dealer buys $300 worth in December and gives a trade acceptance at the end of the month for 30 days. By the 20th of January the dealer has bought $200 more. He has reached his credit limit. Under the open book account system the jobber would have to shut down on the dealer. But with a trade acceptance coming due at the end of January and the jobber knowing he will get the December $300 Feb. 1 the jobber would know that any excess over the $500 probably would not reach the dealer until about the time the December $300 was paid, so the jobber could extend what might seem to be an excess credit. In reality it wouldn't be an excess credit, for he would know where he gets off. Under the open account system he never can be sure.

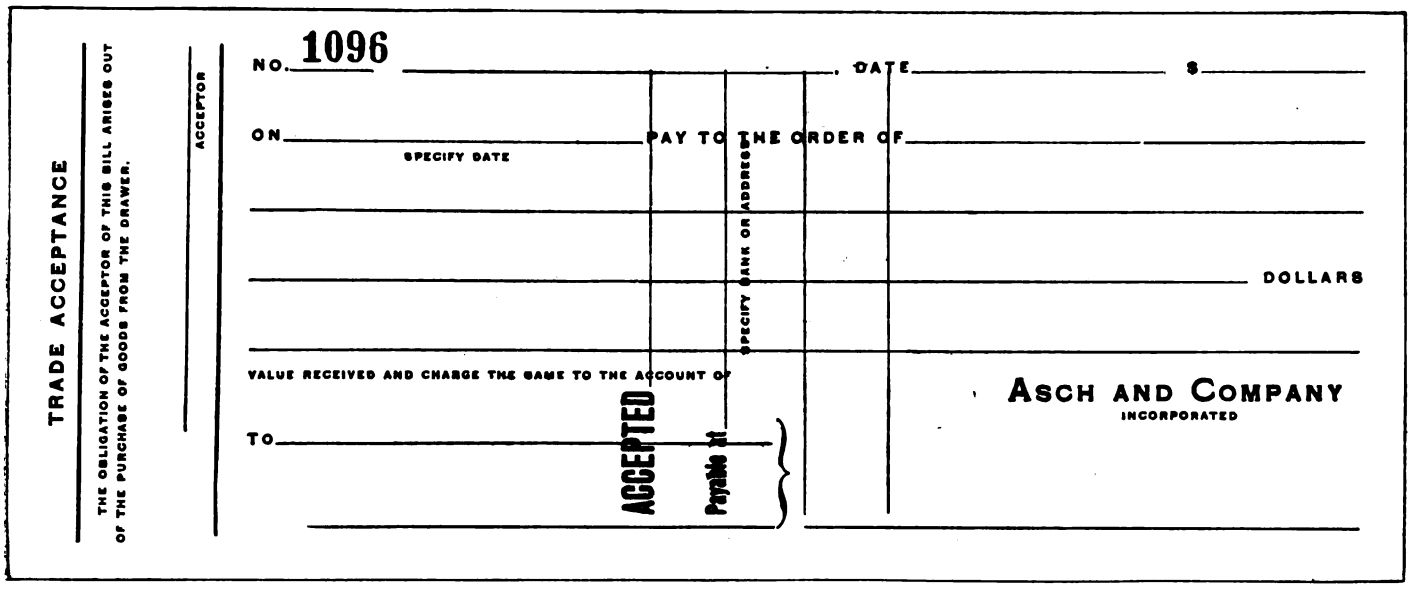
Acceptance a Guide to Dealer

2—The acceptance is a buying guide to the dealer. It prevents him being overloaded with goods by ambitious salesmen. The dealer always knows just how much he has outstanding in accounts payable and isn't likely to get in too deep.

3—It prevents an accumulation of overdue accounts. Every account is paid when due and no account gets priority over another. The system works automatically. The dealer doesn't have to worry about whom to pay or when. The acceptances take care of the whole plan and the dealer is less likely to have more outstanding than he can take care of.

4—It makes the dealer a better business man. He ceases to be a haphazard

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THE TRADE ACCEPTANCE is made in various forms, most of which are about like that shown here. When this comes to the dealer with a statement the dealer writes his name, home town and bank across the face, on the lines made for that purpose, and mails the acceptance to the house that sent the statement. On the date specified the paper comes to the dealer's bank and is paid there

operator. He gets from under a burden of debts for merchandise. He is spruced up and spurred on just the same as is the man who enlists in the army. He becomes a part of an efficient machine and is benefited thereby.

5—It accelerates the dealer's business from stem to stern. It causes bills, invoices and statements to be watched and checked. It takes laxity out of stockrooms and receiving departments, because the man who is spending his own money is not going to permit goods to come in with parts missing or damaged. He is going to make a kick right away. He protects himself.

6—It draws the dealer's attention to cash discounts and may result in his taking these discounts more often, which amounts to earning 24 per cent a year on his money so used.

Increases Dealer's Credit

7—It increases the dealer's credit standing. Every man likes to be considered as having good credit, but it is a business fact that no man can get a credit standing until he has earned it. The use of trade acceptances shows the dealer to be a man who is willing to have his own credit subjected to check.

8—It gives the dealer greater buying power. A dealer may know he can buy more heavily at a certain time and make good at a future time, but ordinarily he might have trouble convincing the seller of goods. He might even have trouble borrowing money on a note to get the goods. The trade acceptance gives him these goods.

Improves Collections

9—It improves the dealer's collections from his customers. If the dealer is obliged to pay on certain dates he isn't likely to let his customers impose on him by piling up overdue accounts. He is spurred on to better his own condition. He may even be prompted to go on a cash basis with his customers.

10—It gives the dealer peace of mind. He doesn't have to wonder if it isn't time to pay his bills, and whether the creditor needs the money. The acceptance takes care of it all. It gives the seller his money and the dealer his usual credit.

Objections Dealers Have Made

Sometimes dealers hesitate to accept the acceptance plan. They have various objections. None of them is very serious. Here are a few with their answers:

1—The dealer may be timid about putting something new into practice.

Answer: Hesistancy of this sort is generally based on caution. The dealer may consider it only "one more scheme." But this "scheme" is indorsed by the United States Government. That's a fairly good recommendation, isn't it? The acceptance is made possible by the Federal Reserve Bank Act.

2—Is it necessary to sign an acceptance to do business with you?

Answer: The answer to this is up to the seller of goods. At the start it probably will not be necessary, because it is a new plan. In course of time many probably will make it strictly a part of their businesses.

3—In our opinion it is detrimental to our credit standing.

Answer: Going on record as willing to pay debts when due is NEVER detrimental to one's standing. It is UNWILLINGNESS that is detrimental.

4—We never gave a note for merchandise and don't care to start now.

Answer: A trade acceptance is NOT a note. If it were there would be no need for it, because notes are an already existing form of business. Notes are generally used to borrow money. The acceptance is used in order that the seller of the goods may, in a way, legitimately borrow money on what we now call "open book accounts."

5—You are the only concern that is making that request of us.

Answer: That is because it is a new practice in this trade. Eventually all business houses will do it. Columbus was the only man who believed he could discover a new world. To-day we erect monuments to him.

6—Are you asking the same thing of ALL your customers, or just of us?

Answer: The seller must make this a uniform practice or his own business will be injured when it is discovered that he is discriminating.

7—We did not make any such agreement when we gave the order.

Answer: The salesman who sells the goods must explain this plan to the dealer. It is hardly fair to drop the plan on the dealer without warning. But, now that the plan is explained here, dealers should have no hesitancy about accepting it.

Will Help Seller

8—The plan does not appeal to us.

Answer: You must be a bit charitable. The plan will help the man who sells goods to you and, inasmuch as it doesn't affect the handling of your business materially, you should unbend a trifle and "help the other fellow." In the end you'll like it yourself when you discover its advantages.

9—We do not wish to be bound by a specific date of maturity.

Answer: That is a dangerous statement for a business man to make. Prompt payment of obligations and a willingness so to go on record give a man a good standing in the business world. You are already bound by the unwritten law of business. Why hesitate to go on record?

10—Why have you become suspicious of us?

Answer: The answer to this should be a good natured laugh and an explanation of how the acceptance plan came into being, what advantages it has for both buyer and seller, and how it eventually will be standard practice throughout the business world.

Advantages to the Seller

1—It initiates a liquid asset. It transforms book accounts into money.

2—The seller is enabled inoffensively to assist the buyer to complete the contract as the buyer originally intended to complete it.

(*Continued on page* 44)

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Wake Up!

Now Is a Time for Action!

Editor MOTOR WORLD—If ever there was a time for action, individually and collectively, in behalf of the motor industry, it is now. And it will be possible really to do some good if the men engaged in the sales of motor cars throughout the United States will only get together and make themselves heard properly.

Every week in hundreds of papers in this country there is printed all sorts of stories on optimism, gasoline, production, etc., giving the views of individuals. And being buried in the motor sections of papers, they are not read by the men who should read them.

So we should try another plan, one that is bound to bring results. In every big city we have dealers, some organized, some not. That does not matter. They are in the motor industry.

Now, there is no reason why these men should not have a meeting every few weeks, at least once a month, and have some one say something that is worth putting on the first pages of the daily newspapers, not in the Sunday motor section.

For example, when the gasoline shortage was held up as a bugaboo it spoiled some sales. However, if at that time there were meetings of dealers throughout the country to offset it much good would have resulted. Suppose that there was a meeting of dealers and salesmen at a hotel and some one big enough in the industry got up and said:

"At the present time instead of a gasoline shortage the facts given out by the Bureau of Mines at Washington show an increase of 000,000,000 more barrels; that the Federal officials are going to throw open 100,000 acres of oil lands; that new fields have been discovered in Lower California; that in the Gulf region and Mexico the output is largely increased," said William Smith of the N. A. C. C. at the meeting of the Boston Automobile Dealers' Association last night.

"Nor was that all. He further punctured the shortage-of-fuel bugaboo and cheered the dealers and their salesmen by telling them that processes of breaking gasoline insured a much larger portion of the product being secured for motor purposes.

"The Federal officials have repeatedly stated that they had no intention to commandeer the supply," he went on. "They point out the distinction between conservation and waste, and it is a vast distinction."

Added to that could be a lot of more information of value to the public. And the speaker, or a man from the committee could so phrase the opening sentences like the above for the newspaper men that they could get, if not first page, a good head on some news page. Now suppose the headline man fixed it up along these lines:

Gasoline Shortage Is Proven a Myth

Prominent Automobile Man Shows Fuel Is Increasing

Don't you see that right away thousands of people seeing that in the daily papers would read the article. And among them would be the prospective buyers. They would be settled in their minds instead of guessing.

Again, at another meeting have some one get up and give the facts about the industry, how many men employed, what a godsend it was to the country; how it developed skilled labor, etc., such as the N. A. C. C. sends out now, and which is lost in some motor sections and not used at all in others. Have it played up like the fuel plan.

Then have a meeting at which the facts and figures locally are given:

"In 10 years' time the taxable value of Boylston Street and Commonwealth Avenue for buildings used solely by the motor industry has jumped from $7,000,000 to $14,000,000 or 100 per cent," said William Jones of the Massachusetts Real Estate Exchange.

"He was talking to men identified with the motor industry, dealers, salesmen, tire and accessory officials and invited guests.

"Do you know," he asked, "that at a legislative hearing in Boston one day it was brought out that the 200 employees in one plant making motor lamps were getting more money each week for wages than the 600 employees in a mill right next door? That was because the lamp people were skilled workers. And it was the demand for motor cars that made it possible."

Now there are lots of such examples—Michigan Avenue, Chicago, Broadway, New York, etc. And if we had these meetings every few weeks we could get stories where the people would read them in the news columns. Then clippings could be sent to our Congressmen and Representatives.

JAMES T. SULLIVAN,
New England Correspondent of MOTOR WORLD.
Boston, Dec. 15, 1917.

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Complete Design for ¾-Ton Army Truck

THE completion of the design of this little truck marks the finish of one of the most important jobs tackled. They are to be used as ambulances and by the ordnance department and this design will be used also for postal work after the war. The design is not unlike that of the Class A truck, though there is any number of added refinements.—EDITOR.

WASHINGTON, D. C., Dec. 17—The biggest thing yet done in the standardization of motor trucks for war purposes has just been accomplished by the completion of the design for the new Class AA truck, a ¾-ton bevel-driven vehicle which is the acme of motor truck standardization because it is adapted not only to the uses of the Quartermaster Corps, by which it was designed, but also to the work of the Navy, Marine Corps, Bureau of Docks, Signal Corps, Medical Corps and for cantonment work in addition to any other government work requiring a ¾-ton vehicle, and even as an officer's car with a passenger body.

The new truck takes on added importance when it is considered that it will be used for peace as well as war work, in that it will be used for post-office work during the coming year, and all of the trucks emerging from war service will be put into that service.

Will Assemble Five Vehicles

There will be five of the new jobs assembled as test vehicles at once, the parts for these vehicles having already been ordered. It is expected that all of the first four experimental models will be completed and running under their own power by Jan. 15, 1918. The latter vehicles will be assembled by the Reo Motor Car Co., Lansing; the Federal Motor Truck Co., Detroit; the Maxwell Motor Car Co., Detroit, and the Willys-Overland Co., Toledo. The fifth truck will be assembled later in Washington, D. C., as a test against the Quartermaster Corps drawings.

The number of these trucks to be ordered is still very indefinite, although it is possible that 3500 will be needed as ambulances by the Medical Corps, another 1000 at least by the Ordnance Corps and 5000 or more by the Signal Corps and a large number by the Quartermaster Corps. As soon as the test vehicles are completed they will be tested out in the same manner as has been the Class B truck of the Quartermaster Corps and orders for assembly then placed in large numbers.

The engine is already finished. It was finished in the remarkably short time of 14 days, which compares very favorably with the time taken to turn out the engines for the heavy- and light-duty Class B and A war trucks. It was made by the Northway Motor Corp., Detroit. The latter concern received its order to turn out the engine on Nov. 26, and 14 days later the motor was on the block being tested, notwithstanding that the dies for the crankshaft and the patterns for other parts had to be turned out in that short period of time.

Class AA Truck Specifications:

Engine	4 x 5
Wheelbase	130 in.
Tread	56 in.
Turning radius	21½ ft.
Wheels	36 in.
Frame	Pressed Steel
Gearset	3-speed
Weight	5,600 lbs.
Final drive	Spiral Bevel

Other parts now ordered and being turned out as fast as possible include the three-speed gearset being made by the Grant-Lees Co.; steering column by the Gemmer Mfg. Co.; the control lever set by the Warner Gear Co.; pressed steel frame by the Detroit Pressed Steel Co.; springs by the Detroit Steel Products Co.; the radiator core by the Long Mfg. Co., Detroit, and the pressed steel top and bottom tanks by the Federal Motor Truck Co., Detroit; wooden wheels by the Prudden Wheel Co., and two sets of steel disk wheels to be tested later are being made by the Detroit Pressed Steel Co. and the Indestructible Co. All wheels will be fitted with Baker rims carrying 35 x 5 cord tires. The rear axle of the truck is being turned out by the American Ball Bearing Co., Cleveland.

In design there are many parts of the new Class AA job which follow the Class A light-duty war trucks assembled by the Autocar, Denby and White companies. The engine is designed somewhat along the same lines as the Class A and B truck units and has the same hot-spot manifold idea. Again, there will be two separate sets of ignition apparatus with two sets of spark plugs and a generator of the same type as used on the A and B trucks. The rear universal joints will be as on the Class B truck. Again, the steering column and wheel will be the same as on the Class A job and will have the same type of spark and throttle control. The electrical equipment and the engine oiling system will closely follow the design of the Class B trucks.

Will Differ in Many Respects

The new truck will differ from the other standardized models in that it will be bevel driven; in that it will be fitted with an electric starter; in that it will have a vertical finned tube radiator with a pressed steel casing instead of cast steel with cooling fins; in that it will have its two electric headlights attached to the side members of the radiator instead of on the dash and will have a speedometer driven off the gearset. It will also be equipped with a special Kellogg air pump driven off the gearset for inflating tires.

The greatest feature of the truck, outside of its many uses, is the accessibility of the design. Every part has been made as easy to get at as possible, and a great number of pressed parts have been employed to reduce the weight to as low as possible. The frame is pressed steel with four cross members; the radiator tanks are pressed steel, as are also the dash, cowl, runningboards, fenders, fuel tanks and torque arm.

The power transmission is from the engine through a Thermoid fabric universal joint to the three-speed gearset mounted amidships and thence through a short propeller shaft with two metal universal joints to the bevel-driven rear axle. The clutch and gearset can be removed without affecting the engine or steering gear or column.

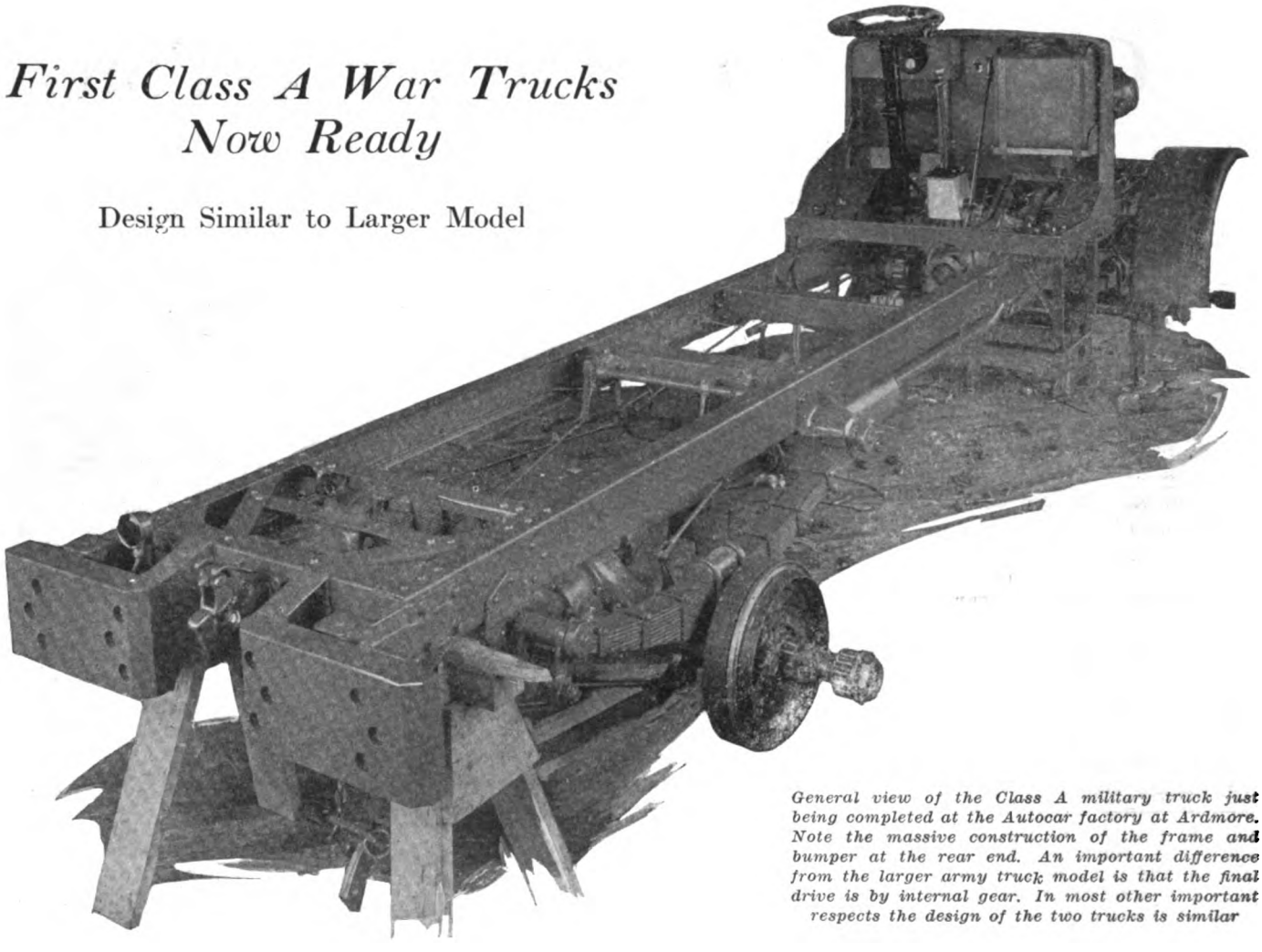
Brief specifications of the truck are as follows: Wheelbase, 130 in.; tread, 56 in.; turning radius, 21½ ft.; wheels, 36 in., wood and steel, the former with 12 spokes in the fronts of 1¾-in. diameter and 2-in. diameter in the rears, the metal wheels of the disk type; the frame is straight sided, with rails 4 15/16 in., top

(*Continued on page* 12)

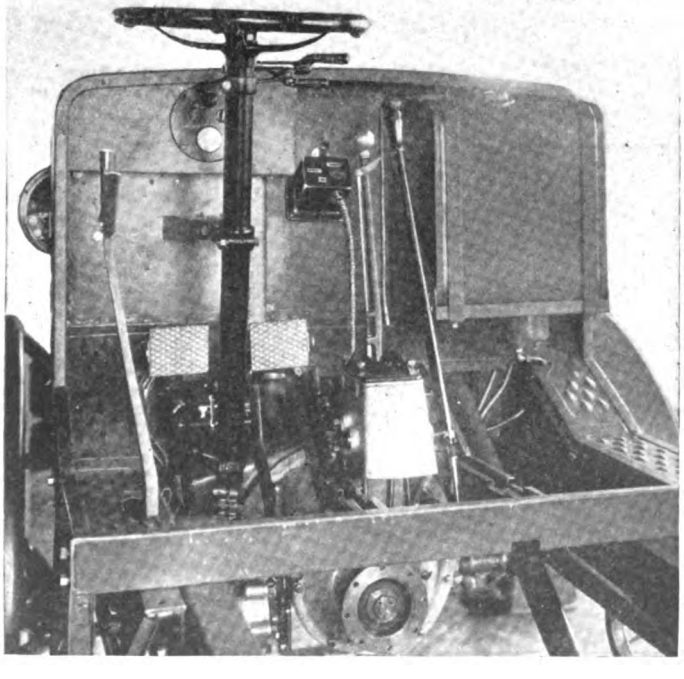
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First Class A War Trucks Now Ready

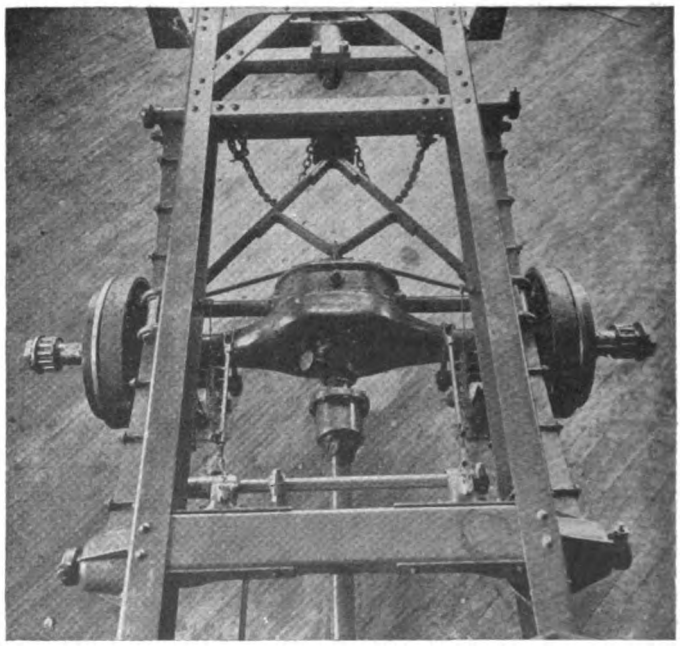
Design Similar to Larger Model



General view of the Class A military truck just being completed at the Autocar factory at Ardmore. Note the massive construction of the frame and bumper at the rear end. An important difference from the larger army truck model is that the final drive is by internal gear. In most other important respects the design of the two trucks is similar

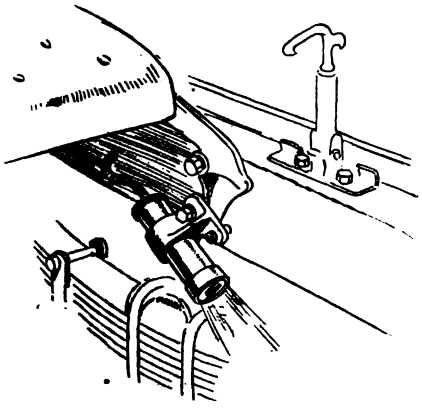


In general arrangement the dash follows closely the larger model. It is somewhat narrower and the tank mounted on the right side is correspondingly smaller

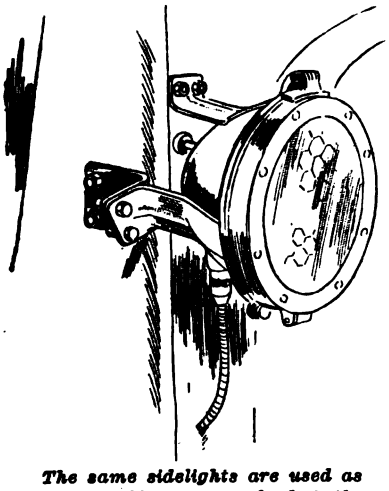


Showing the rear axle and the rigid construction of the frame at the points of attachment of the springs. The triangular sprag is shown in its raised position

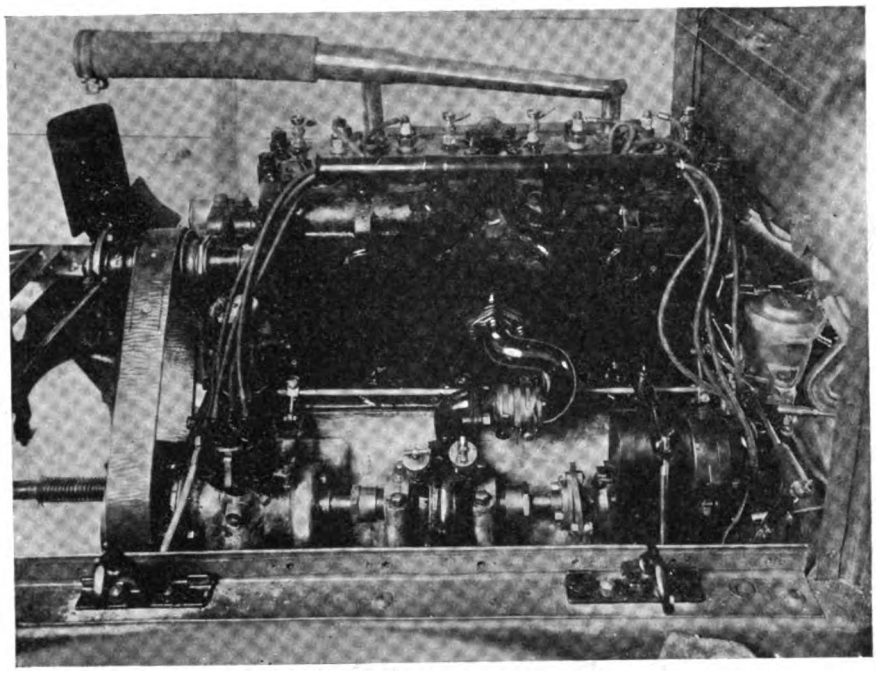
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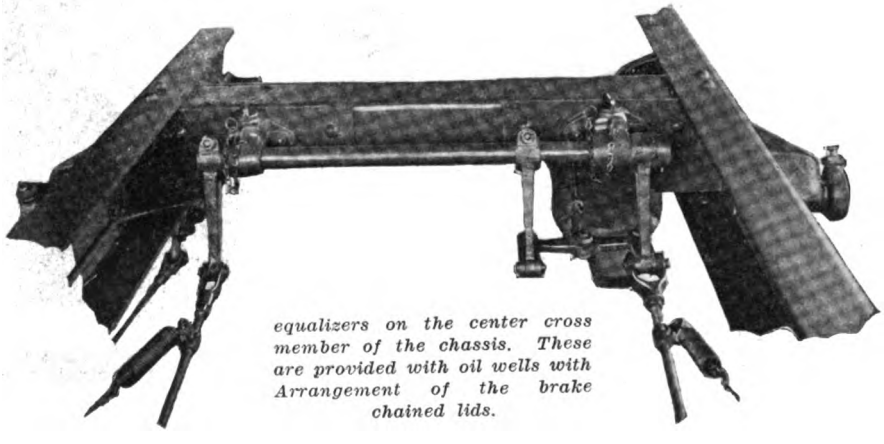
As in the larger truck a miniature night lamp is fitted to cast a feeble ray of light on the point of contact of the front wheels with the ground. This light is just able to pass the "all-lights-out" rule when driving immediately behind the trenches



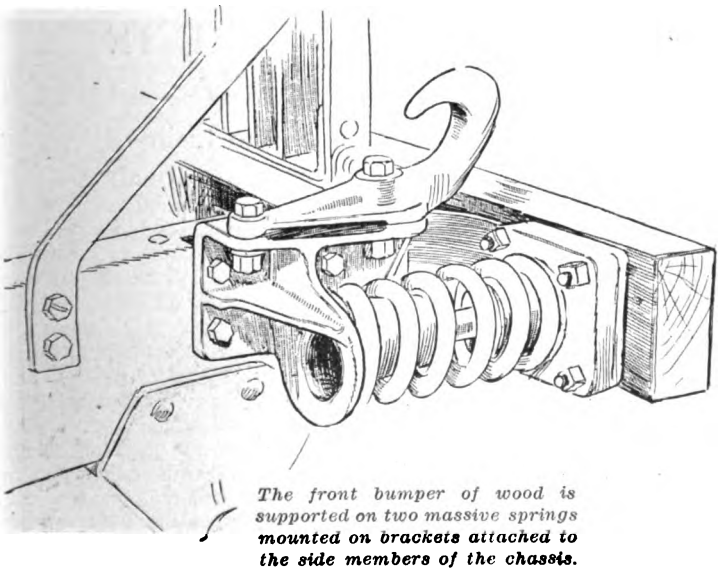
The same sidelights are used as on the Class B truck, but the dash being narrower a special bracket was found necessary to take one of the three supporting arms



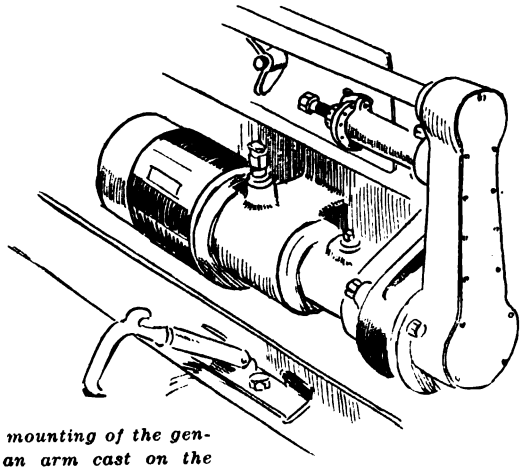
The engine for the Class A truck has block-cast cylinders. The starting motor, pump and magneto are arranged on the left side with the generator on the right. Note S coupling from water pump to cylinder jackets



equalizers on the center cross member of the chassis. These are provided with oil wells with Arrangement of the brake chained lids.



The front bumper of wood is supported on two massive springs mounted on brackets attached to the side members of the chassis. An additional flat transverse spring is interposed between the bumper and the front of the frame



Substantial mounting of the generator on an arm cast on the side of the crankcase. This sketch also shows the automatic governor casing and the method of adjusting it and locking by wire and seal.

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Complete Design of ¾-Ton Army Truck

(*Continued from page 9*)

and bottom flanges 1¾ in. wide, all of 5/32-in. stock; the overall length of the frame is 179 in., which allows of sufficient space for fitting the various types of bodies as employed by the different departments.

The assumed weight of the truck, including the chassis with all tanks filled, express body, driver and helper and a normal load of 1500 lb., is 5600 lb. When uniformly loaded the assumed weight in front is 2240 lb. and in the rear 3360. Unloaded, the weight distribution is 2100 lb. in front and 2000 lb. in the rear. The radiator core is of the vertical tube type with a thickness not to exceed 3½ in. and to have provision for attaching shutters. It will have a 16-in. fan driven by a 1½-in. belt running on a ball-bearing hub.

The motor will be 4 by 5, with a displacement of 251.3 cu. in. Its weight is not to exceed 525 lb. The crank diameter is 2⅛ in., with the same sized pins and bearings. The assumed maximum torque was to be at 1800 r.p.m., and the first block test of the engine showed a level torque curve at between 800 and 1500 r.p.m., with a maximum horsepower of 38.5 at 2200 r.p.m. It is expected that this horsepower will be increased to over 42 at the same speed after the pistons and other moving parts have been worn in to a greater extent.

The maximum speed of the truck is to be about 30 m.p.h. with the governor disconnected, although the latter may be set to give any desired speed.

The overall length of the motor from the fan to the rear of the cylinder block is to be 31 in. The flywheel is 16 in. in diameter and is to weigh not over 80 lb. and to have a detachable steel starting gear. The engine crankcase is to be aluminum, with a No. 3 bell housing, with supporting arms in rear and a trunnion in front.

The crankcase is so designed that cylinders of 3¾-in. bore by 5-in. stroke are interchangeable. The gearset is a three-speed type with center control, and with gears of ⅞-in. face and 6 to 8 pitch stub teeth. The gearshift lever is lo-





SOMEWHERE IN AMERICA

The start of the train of 30 Trucks en route to an Atlantic seaport



Dawn found the train ready and waiting, the background being part of the Packard plant. At the right is the line-up just before the start and above is a picture of Captain Bronson, Quartermaster's Corps, in charge of the train

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cated directly in the gearset cover with the brake lever and ratchet on the cover. The reverse idler gear is on the left side looking from the rear. The tentative gear ratios are direct on high, 1.76 to 1 on intermediate, 4.01 to 1 on low and 4.93 to 1 on reverse. The gearset has an oil-filling hole at the front end to permit of filling by removing the floorboards.

The front axle is of the I-beam section with Elliott type fore and aft steer, with the column on the left. Spring clip bolts are ⅝ in. in diameter and the spring centers are 28¼ in. The drag link is of 1-in. tube stock.

The rear axle is a bevel spiral type with 61 teeth in the ring gear, giving a normal ratio of 5.5 to 1, with an 11-tooth pinion of 4¾-in. pitch. The weight of the rear axle is set at 325 lb., with a pressed steel axle housing without truss rods and with alloy steel tubes for carrying the outer bearings. The clearance under the gear housing will be 10 in. with 35-in. wheels.

The torque will be taken through a channel-section torque arm with lightening holes in the center. The feature of this arm is that it is carried on a spring at the point of attachment to the bracket fastened to the frame in much the same manner as employed on the Reo 1500-lb. delivery car. This is for the purpose of reducing rattle and wear. Propulsion will be taken through radius rods.

In order to get the truck to work immediately the chassis is completed, the Quartermaster Corps has already placed orders for three Quartermaster Corps bodies with the C. R. Wilson Co., Detroit, the Otto Body Co., Lansing, and the Budd Mfg. Co., Philadelphia. The body of the latter concern is to be entirely of metal.

In each case the type follows the design of the previous Quartermaster Corps units with bow tops and tarpaulin covers. The wood types are reinforced with pressed steel brackets on the outside and are provided with folding seats to carry 12 persons. These seats can fold back over the flareboards on each side with the supports folding up against the inside. Bodies for the Signal Corps and the Medical Corps are already being worked out to suit their own particular needs. When used as an ambulance by the Medical Corps the Class AA truck will be fitted with special springs in order to make for easier riding.

Standardized Trailers for War Work

First of Several Types Now Being Assembled —Many Class A Motor Parts to Be Used

WASHINGTON, D. C., Dec. 17—Carrying on the standardization work already performed by the Quartermaster Corps in the design of its Class B, A and AA war trucks, the army will also have several types of standardized trailers, the first of which, a 1½-ton, four-wheeled reversible or double-ended type, are now being assembled by the Grant Motor Car Co., Cleveland, and the Detroit Trailer Co., Detroit.

The standardized design of these trailers is the result of the work of the Quartermaster Department in co-operation with the engineers of the leading trailer makers of the country, including Troy, Detroit, Sechler, Ohio, Arcadia and others.

In addition to the 1½-ton four-wheeler, which will be used at first behind the Class A war truck, the Signal Corps will have a standardized two-wheeled pneumatic tired trailer. General Pershing has also requested the Quartermaster Dept. to work out a two-wheeled trailer with a load capacity of 3 tons and this has been designed although its manufacture has not been begun.

The Four-Wheel Trailer

The 1½-ton four-wheeled trailer has a wheelbase of 72 in., a tread of 60 in. and a height of floor above the ground of 42 in. It is mounted on 36-in. wheels all around and has 4-in. solid tires. The frame length is 126¾ in. which is sufficient to carry a standard Class A Q. M. C. body.

Many of the Class A truck parts are used in the job, including the front springs, spring shackles and brackets, yoke or tie or reach rod and everything on the wheels outside of the king bolt. The frame is of 4-in. channel with the springs spaced on 36¾-in. centers in order to prevent excessive side sway.

STANDARDIZED trailers are to be used by the Quartermaster's Department and also by the Signal Corps. A light two-wheeler will have pneumatic tires and it will be possible to tow it at 30 miles per hour. There is to be a reversible four-wheeler for heavier work.—EDITOR.

The trailer is made up of fifty-eight different parts other than those of Class A truck design.

All springs are shackled so that they take none of the driving loads, the drive being taken through the frame by means of a two-part draw-bar with a spring coupler of composite design. This was necessary in order not to interfere with any existing patents. Each pair of wheels is provided with radius rods with ball ends to permit of the necessary universal motion in turning corners and negotiating uneven roads. The trailer can steer from either end and in each case the steering cross rods are behind the axles in order to prevent breakage.

The Signal Corps two-wheeled trailer will be mounted on 35 x 5 pneumatic tires and will have a body about 21 ft. long and 5 ft. wide. The axle will be about 9 in. nearer the rear end than the front. This type of trailer will be able to withstand speeds up to 30 m.p.h. and will be used to carry airplane wings and other airplane parts. Its capacity will be about 1 ton. The tops of the wheels are protected by guards level with the trailer body which will have no sides but will be provided with a removable bow top and tarpaulin camouflaged to avoid detection.

Class A Trucks Start to Capital

WASHINGTON, Dec. 17—Three of the Class A standardized trucks are ready to leave the plants of their assemblers. The Denby truck is ready to leave Detroit to-day; the White will leave Dec. 18 and the Autocar will leave Philadelphia in a few days. The Denby and White trucks will meet at Pittsburgh Dec. 22 and will meet the Autocar truck near Washington. The three of them will be in Washington about Christmas. They will not haul trailers as was originally intended because the trailers are not quite ready and because of the condition of the roads.

Co-ordinate Labor Agencies

WASHINGTON, D. C., Dec. 17—L. C. Marshall, chairman industrial service section, Council of National Defense, plans to co-ordinate all existing labor agencies for better distribution of the nation's labor supply.

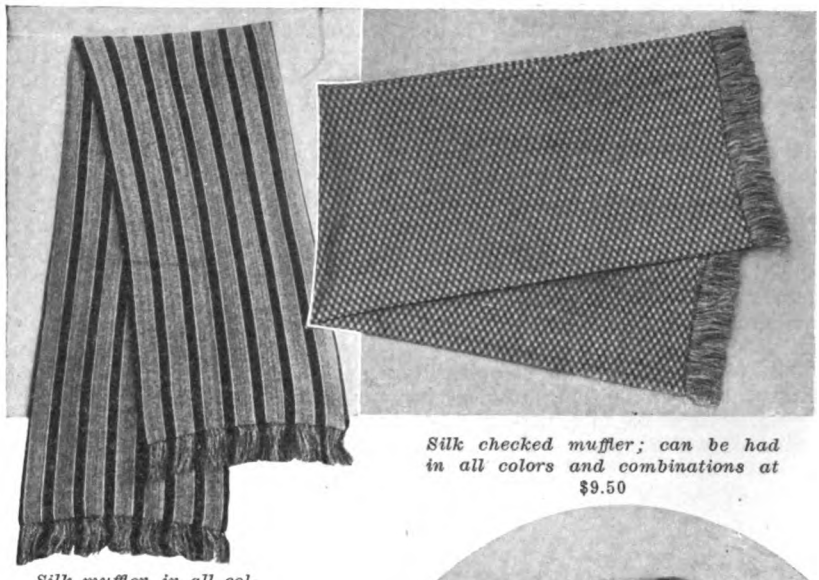
"No conscription of labor now exists, nor, so far as I know, has such a conscription been thought of," stated Mr. Marshall. He also said that, "We cannot state that there is an actual shortage of labor. There are no figures to show that there is a shortage, but there is a bad adjustment, a shortage here and a surplus there."

He has asked the state councils of defense to assist by extending its systems of exchanges at the disposal of the war emergency employment service. Inducements to labor to migrate will include the usual peace time inducements, plus transportation expenses and bonuses.

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Brushed wool muffler, in all colors, $2.50 and $3



Silk checked muffler; can be had in all colors and combinations at $9.50

Silk muffler, in all colors and stripes; price $6.50



Ladies' knit lined driving glove with shirred wrist; the price is $4.75



Ladies' silk and wool motor hat with elastic back and chiffon veil; in all colors at $8.50



All wool over plaid motor coat with roll collar and half belt, half lined; priced at $70



Wool velour motor coat with raccoon collar; silk lined; price $87.50



Wool velour in taupe with Hudson seal collar, cuffs and pockets and lined with crepe; price $100

Profits for the Dealer

Every woman who motors in the winter—and hundreds do so—needs winter wraps. And thousands who never motor need winter wraps just the same. Furthermore, they want nifty looking wraps.

There is a profit for the dealer who will get in touch with the source of supply of a line like these. If he is a small dealer he may not want to carry a big stock, but he can sell the goods if he has a good catalog description of them with illustrations.

Ask your jobber where you can find goods like these. Ask him how you can sell them. Maybe he already has a good plan that will aid you in making sales without carrying a big stock.

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Silk motor hat with mesh veil can be had in all colors; priced at $7.50

Silk muffler in black and white, green and white and blue and white stripes at $7.50





Hat illustrated in the picture above, with veil in use



Goggelette No. 3; used extensively for racing and flying; it is made with adjustable bridge allowing ventilation; it can be had with white or amber lens at $6

Winter Styles for Women

Garments like those shown on these pages are not in the cheap class. The dealer need not, however, shy at the prices. A good trade solidly built is better than a cheap trade that buys when it has the money.

There is all the difference in the world in the way two hats sit. One looks like the money it costs. The other doesn't look like ten cents. It is the hat with the looks that sells.

To sell goods like these there should be a good store or office and a good show window. In fact, a window and store are necessary to sell very much of anything in this business.

The goods on these pages are from the stock of the Auto Supply Co., Columbus Circle, New York City.



Velour coat in beet root with collar of kit coney; the price is $52.50

Heavy motor coat of wromba cloth, with full sweep; has half belt and is half lined; price $55

Over plaid coat of all wool with shawl collar, half belt, sliced pocket and is half lined; price $30

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Motor World Window Service



How to Trim This Window

Two 24-in. pedestals, one in the right hand corner and one in the left hand corner. One 30-in. pedestal in the center. Three boards used for shelves, center one 12 x 36; ones on right hand and left hand corners, 12 x 28 in.

The center cut-out showing the Boyce Moto-Meter is made from a piece of cardboard 20 x 28 with 12-in. circle 10 in. from the top and a piece of grey material of any kind fastened in the back as a curtain, about 3 in. back of the hole.

Snow represented over and under circle is put on with water color paint. Any white paint will do.

Two uprights in back, made of any kind of lumber, holds the card in place.

A large Boyce Moto-Meter cut-out on pedestal fastened by an L-shaped piece of wood and tacked onto shelf.

Material used in this display was velour, but can be substituted with any cheaper material such as sateen, cheesecloth or rep material of any kind.

The two signs here shown—"Know" and "Prevent"—can be purchased at a local sign writer's at a cost that would be very small—perhaps $2 or $3. The other signs are supplied by the Moto-Meter Co. The small white cards here and there are common Boyce booklets.

If pedestals are not available boxes can be used and covered with crepe paper. It is suggested that blue flooring and material of the same color be used, as that will give it a real high-class background.

Send Out These Letters

Mail One the Saturday Before You Set Up the Display and the Other Monday Afternoon

There is nothing that makes a man's heart sink farther than to find the radiator of his car full of ice.

When he thaws out the ice the water comes out through countless leaks.

Then there is a big repair bill to pay.

He says, "Why didn't I prevent this?"

Our suggestion is that you prevent any such trouble.

Do two things:

1. Equip your car with a Boyce Moto-Meter that tells you the temperature of your motor, whether it is too hot or too cold.

2. Put some Johnson's Freeze-Proof in your radiator and the water CAN'T freeze.

We are selling these goods to many car owners right now. They are getting cheap insurance against costly repair bills.

The small amounts they are investing in these devices will enable them to drive in the coldest weather and leave their cars standing exposed on the streets or in cold garages at night without danger of costly repair bills.

Come in any time and ask us about these goods. Remember —the Boyce Moto-Meter and Johnson's FREEZE-PROOF.

What often happens is this:

The thermometer drops.

The radiator freezes and bursts.

You pay a big repair bill.

What is much better is this:

You install a Boyce Moto-Meter. This tells you whether your motor is too hot or too cold.

You put Johnson's Freeze-Proof into the water in your radiator and it can't freeze.

We can regulate the water in your radiator so it will withstand any temperature. It all depends on the size of your car and the temperature we are likely to encounter.

These two little precautions are essential in motoring. They cost little and prevent big repair bills.

We have all heard about that "old stitch in time" that "saves nine." These little preventives may save you "many times nine" dollars—and they cost less.

One of the most profitable calls you can make this winter is a call on us. Ask about the Moto-Meter and FREEZE-PROOF.

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If the War Should Last 7 Years

By Ray W. Sherman

"SAY, Reilly!" seriously asked Ben Doyno, Callawassa's supplyman, "how long is this war going to last?"

"Why ask me?" countered Reilly. "How do you figure that I have any first-hand information on the subject?"

"Gosh! I don't know! But it worries me!" Ben scratched his head.

"The best information I can give you, Ben, is that it may last seven months or it may last seven years——"

"Yes," interrupted Ben, "and if it lasts seven years—then what?"

"Yes, then what?"

"I'm darned if I know where I'm going to get off—or where anybody's going to get off," said Ben. "I've thought and worried and puzzled my head, and I can't see any loopholes—no light."

Begin to Plan Now

"I don't believe anybody can," added the car dealer. "The only thing we can do is begin now to plan for a seven years' war. If it lasts seven years we are then in some shape to pull through. And if it ends in seven months we will be that much better off.

"Ben," Reilly asserted, "this is something on which we've all got to do a lot of thinking. Some of us who never thought much before have got to be thinkers now. It's the thinker who is going to pull through in best shape—if he pulls through at all."

"Thinking is all I've been doing," retorted Ben, "and the more I think the more bewildered I seem to be. I——"

Thoughts That Result in Plans

"Maybe you don't think in your usual good way. Maybe you've let the situation upset your method of thought. We must think real thoughts now, Ben. We must try to foresee what might happen and figure out plans for adjusting our businesses in case those things did happen. Unless our thoughts result in plans our thinking has not been profitable.

"Let's take your own case. If the war should last seven years you would lose a lot of the men in your organization. Your business would be diminished also. Your overhead would possibly decrease somewhat, but not in proportion to the normal decrease in your business. In that case what would you do?

"Now—what you must do is think like this: I may lose all my stock men, all my salesmen, both inside and outside men; I may lose some of my office employees. What am I going to do? You should figure on this now and not wait until things have happened.

May Have to Employ Women

"In case you lost four men out of your stockroom what would you do? In normal times you would hire four more. But these are abnormal times and you might not be able to hire four more just like you had, so what would you do then? You might hire men considerably above military age, provided the demands of industry didn't make other work more attractive to these men.

"In case you couldn't get these older men what could you do? You might hire women. There is a lot of your stock work that could be handled by women. Of course, the ordinary fuzzy haired girl of eighteen wouldn't fit in very well in a stockroom, but you should be able to get women for the work who are physically fitted for it. There probably are many married women who will be glad to work to help out the family income if the war lasts seven years. This doesn't mean that the lot of the married women is to be harder. Many of them are already doing work to help out and a lot of it is a darned sight harder and less profitable than the work you could give them in handling your stock.

Don't Hire Women to Save Money

"Maybe it doesn't seem right to talk of woman's work in this way, but—don't forget this, Ben—we may talk of many things in different ways if the war lasts seven years. One thing I do believe, and that is that we shouldn't begin replacing men with women simply because we think we can save on the cost of the labor. The woman should get as near the wage of the man as is reasonable. If she supplants him entirely and can do all his work just as well as he I would be willing to pay her just as much. That is done to the extreme in England. Women there who supplant skilled men get the man's pay even though the man can do many jobs while the woman can do only one thing.

"As for your salesmen, many of them possibly could be replaced by women if it became necessary—and it would be necessary if the war lasted seven years. Can't you imagine now just how you would run classified ads and begin looking around for the right women for these jobs.

"Maybe your sales would decrease. Perhaps car owners might drive their cars less. Car driving might be reduced to an absolutely essential basis. It is almost there now—and your business has fallen off some. On the other hand, more cars will be driven another year—all of which means that accessories and supplies will be needed.

Think of Way to Expand Business

"But in case the field of sale were restricted what would you do? You should figure on how you might expand the field. This might be done by adding other lines of business. You might sell a household appliance of some kind, get a truck or tractor agency, or find some other line of business to keep up your volume.

"Dealers in cars would have much these same labor problems and could consider them in the same way. They would have—and now have—the same problems of decreased business, and they should go after them in the same way.

Trade Acceptances

"Service stations and repairshops may be kept busy by campaigns for overhaul work, and might even be fitted for certain necessary sub-contract work in war industries. Truck, tractor and trailer agencies and agencies for farm lighting outfits—all sorts of things—may be developed to keep up the volume of business.

"We all should consider getting cash from retail buyers and using trade acceptances. We should squint ahead as far as possible and——"

"Supposing we don't win this war——"

"If we don't we needn't worry about what to do," Reilly remarked. "There'll be somebody to tell us exactly what to do and how to do it and when to do it. We've got to win and only right thinking can win it."

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Repairshop Shortcuts

From The Motor World Roadman

No. 1484—ELECTRICIANS' SERVICE KIT

An ordinary grip-type metal tool box may be reconstructed into an electricians' service kit, providing all of the necessary equipment for the specialized work. A wooden sub-base is attached to the bottom of the case and contains six dry cells. These batteries are used to operate a buzzer or to supply electricity to a car disabled by battery failure. Both the terminals for the power line and the buzzer are carried in an instrument block, as is the voltmeter and ammeter. The balance of the case is used for the automobile tools and electrical equipment.—E. Moore, Auto Electric Service Station, Detroit.

No. 1485—BATTERY REPAIR SYSTEM

Hot water or steam is often used to soften the compound holding battery covers in place. Heat from electricity may be used in a similar manner. A box large enough to hold five batteries is lined with asbestos lined covering. This cover carries four resistance heating coils similar to those used in an electric flat iron. When the batteries are placed in the box, the cover closed and electricity passed through the coils, heat is generated that softens the sealing compound and permits the tops to be quickly removed. The cases themselves may be removed after a similar treatment. This system is best for a large shop handling many batteries and is cleaner and less complicated than the steam or hot-water systems.—Willard-Cowan-Vesta Battery Station, Denver.

No. 1486—RADIATOR TESTING

The common method of testing a radiator for leaks is to submerge it in water and apply air pressure, noting the position of the bubbles. When the water is dirty and the day dark this is not an easy matter, especially if the leak is small. By constructing the bottom of the testing tank of plate glass and placing several electric lamps beneath it an intense illumination is thrown through the water on the radiator that permits all parts to be seen and the leak to be readily located. This tank may be incorporated into a radiator repair bench that is mounted on pipe standards.—O'Meara-Green Motor Co., Denver.

No. 1487—TESTING FORD COILS

A standard Ford magneto mounted on a special bench and driven by a small electric motor may be used to test Ford coils under actual service conditions. The current is interrupted at regular intervals, depending on the speed, by means of a pointer resting on contacts that are fastened to a rotating part. This gives the same effect as interruptions at the commutator in actual service.—O'Meara-Green Motor Co., Denver.

No. 1488—UNIVERSAL SPEED WRENCH

A speed wrench permitting the ready removal of partially enclosed nuts comprises the usual socket attached to a shank through a small universal joint. At the upper end of this shank is a ball and cross pin. This ball permits the operator to exert a greater downward force without difficulty and the universal joint permits the wrench to be turned in an offset position.—J. N. Gaither, Mountain Motor Car Co., Denver.

No. 1489—TRANSFERRING BATTERY ACID

It is not an easy matter to transfer battery acid from the commercial carboy to the shop container, if the carboy has to be tipped for this purpose. However, the acid may be readily forced out by air pressure to any desired amount. A bent glass tube is provided fitting tightly through a cork placed in the mouth of the bottle and extending to the bottom of the bottle. Pressure is applied to the surface of the liquid from a common foot pump through another glass tube in the cork.—E. Moore, Auto Electric Service Co., Detroit.

No. 1490—BATTERY POST DRILL

This drill combines the center punch and drill commonly used in drilling battery posts prior to the removal of the connector straps. It consists of a tubular hand drill holding a punch through a pin and slot. This punch presses against a spring, and as the drill cuts into the post is forced up into the hollow shank. The slot is so gauged that it stops the drill at the required depth, leaving the center of the post intact so that only a small amount of burning is required on assembly.—Economy Battery Co., Denver.

No. 1491—NIGHT SERVICE BENCH

A night service bench permits an accurate check to be kept on all parts handled by the night service man and prevents owners from helping themselves. It is simply a cabinet about 4 ft. long, 30 in. high and 2 ft. deep mounted on casters and containing three drawers that may be locked. The top carries a tray for smaller tools and a machinist's vise. In this bench are carried all supplies necessary to night service, such as spark plugs, terminals, wires, small bolts and nuts. The night man carries the key, is responsible for all parts, and must account for them in the morning.—O'Meara-Green Motor Co., Denver.

No. 1492—BATTERY COMPOUND URN

Many shops use a kettle for melting the battery sealing compound. This, however, may easily be tipped over and the compound is not easily used. For this purpose an urn resembling a coffee urn and similarly provided with a draw-off faucet is most excellent. A hood should be provided to carry away the fumes, and when the compound is desired it may be obtained by simply opening the faucet.—Willard-Cowan-Vesta Service Station, Denver.

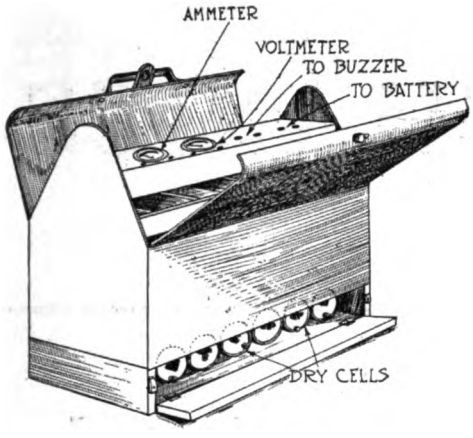
Bay City Out for Cash

BAY CITY, Dec. 14—The Bay City Automobile and Accessory Dealers' Association held a special war meeting recently to discuss the effect of the war on automobile trade conditions. It was the opinion of the dealers that a strictly cash basis was essential to success, and it is possible that the association will work to the end. All legitimate dealers and garagemen will be taken into the association.

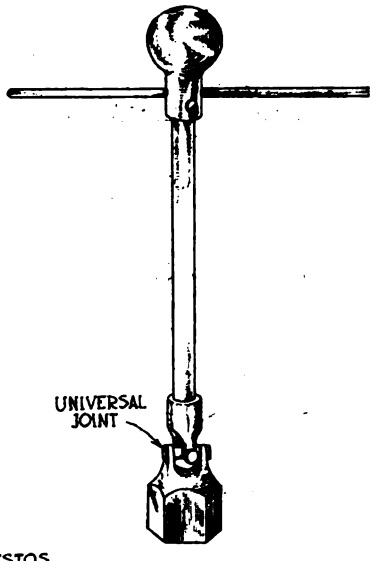
Unionism for Oil Industry

KANSAS CITY, MO., Dec. 14—A shutdown of the whole oil industry is threatened as a result of an aggressive unionizing movement of its employees. This movement has been pushed by the American Federation of Labor. At the present time there is a strike of nearly 10,000 oil workers in Louisiana and in the Gulf Coast of Texas. The unions demand higher wages and recognition. So far there seems to be comparatively little objection to paying even the scale asked by the union, but the big fight seems to be coming on as to whether or not refineries should be closed or open shops. It is estimated that, even if there is no new production for the next 6 months, output will not fall off more than 50 per cent.

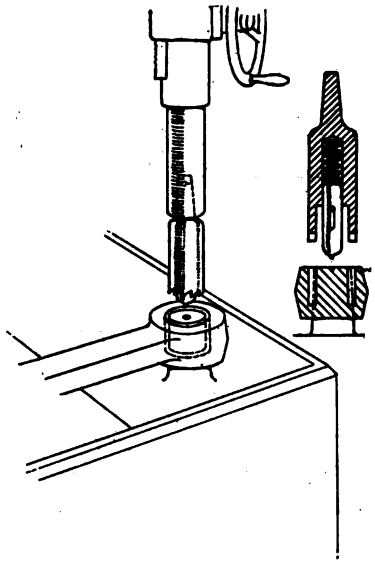
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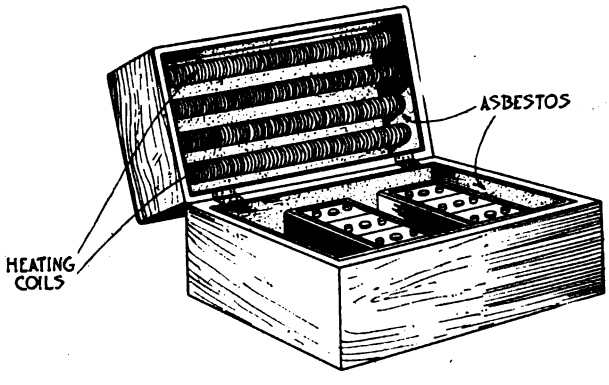
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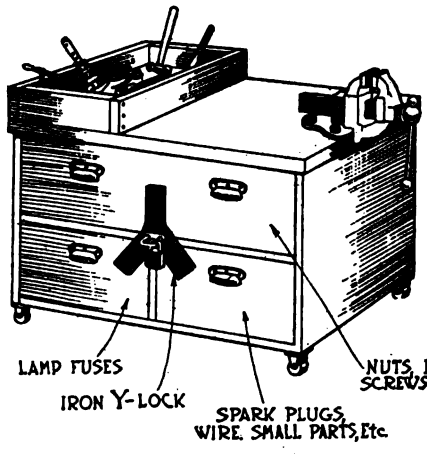
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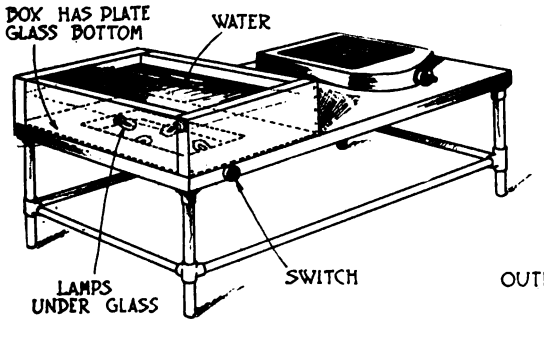
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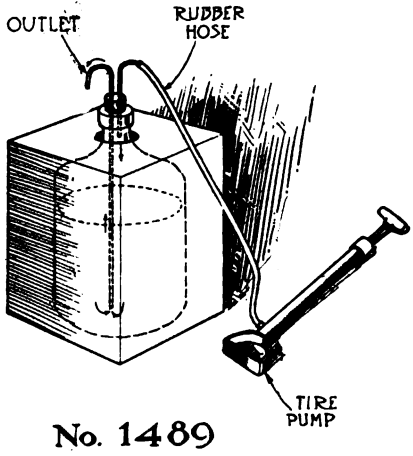
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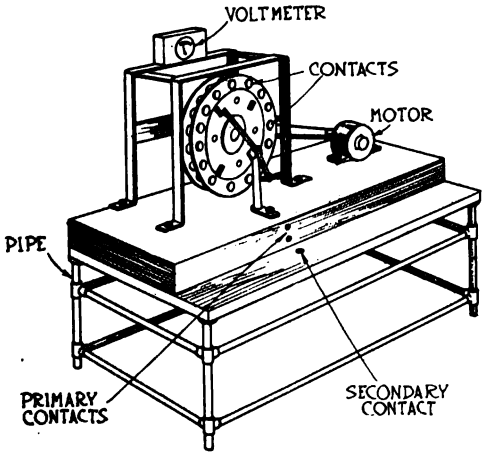
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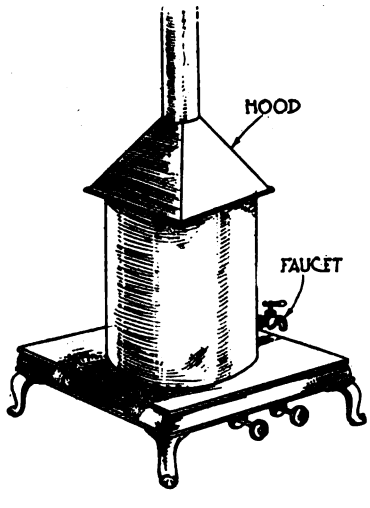
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A Department of

BETTER MECHANICS

No. 48

Maintenance on Grant Model K

By S. T. Williams

Removing Carbon—Setting Valves

THE cylinder head may be removed and the carbon scraped out in the usual manner. There are, however, several points that the mechanic should note in doing this work, as otherwise many unnecessary steps will be taken.

First, all of the valve mechanism should be stripped from the engine. After removal, all valve parts should be placed on the bench in the order of removal, so that they may be replaced properly on assembly. Next the three screws holding the vacuum tank in position, together with those holding the carbureter to the engine, are removed. After disconnecting the carbureter controls, the carbureter may be swung to the side of the engine, out of the way. By doing this it is not necessary to drain the system or disconnect any unnecessary parts.

The distributer head is then unsnapped and the coil and head removed. It is necessary to remove the coil to permit the head to be taken out without interference later. After removing the wiring bracket, together with the wiring, the wiring may be placed to one side, out of the way.

Now the exhaust manifold bolts, holding the manifold to the cylinder, are removed, and after freeing the exhaust pipe, this manifold is likewise swung to one side. The fan bracket is then disconnected, and after removing the water connections the cylinder head is ready for removal.

After removal of the cylinder head bolts the rocker arms are temporarily replaced, the center cylinder head bolt is slipped in place, and by using a screwdriver or piece of stock the head may be pried free and lifted from place. Care should be taken in doing this, so as not to injure the cylinder head gasket.

However, if the head be pried from place as directed, instead of driving a screwdriver between the head and the cylinder, as is often done, there is little danger of this.

The head should be scraped free of carbon before the removal of the valves, after which the carbon may be removed from the piston heads and the combustion chambers. It will usually be found that only the exhaust valves require grinding, and if the intake valves are bright, and have no ridges or grooves, it will be advisable to leave them alone.

Replacement of parts should be the reverse of the tearing down process.

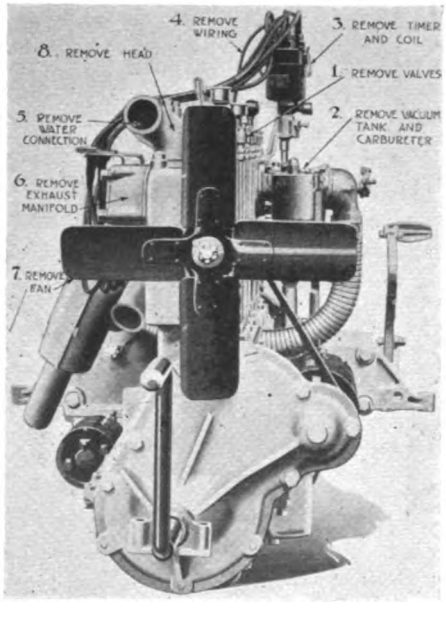


Fig. 1—In stripping or tearing down the engine, the parts should be removed in the order shown, and replaced in the reverse order on assembly

Both sides of the copper cylinder head gasket should be coated with a thin application of shellac before replacement. And when tightening down the cylinder head bolts all bolts should first be brought up snug; the center bolts tightened first, and then the remaining bolts progressively, until all are tight. This will assure an even joint between the head and the cylinder casting, and the even application of strain to all of the bolts.

As the breaker box is replaced exactly as removed, it will be unnecessary to retime the ignition. The valve tappets, however, must be adjusted.

Adjusting the Valve Tappets

Before attempting to make the final adjustment on the valve tappets a running adjustment should be made and the engine warmed up by running for about 15 minutes. This will expand all parts so that the final adjustment is made with all parts in the condition in which they will operate when the car is in use.

The petcocks are then opened and the ignition turned off. By cranking the engine slowly by hand the point where No. 1 cylinder is on compression is determined. Any clearance that is present may be determined for the valves of No. 1 cylinder by pressing on the end of the rocker arm resting on the valve lifter rod. A small coil spring between the valve lifter rod and the tappet serves to keep this clearance constant. The clearance between the rocker arm and the end of the valve stem should be .004 in., and this may be obtained by loosening the check nut on the lifter rod and turning the ball slightly. When the proper clearance is obtained the check nut should be tightened, taking care that the adjustment is not changed.

It is advisable, in making this adjust-

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ment, to constantly press down on the end of the rocker arm resting on the push rod. By so doing all clearance or backlash in the valve mechanism is absorbed and the only clearance present is the desired .004 in. clearance between the valve stem and the tappet.

The firing order of this engine is 1-4-2-6-3-5, and the petcocks should be opened in this order and the proper clearance obtained in each case as above outlined.

Tagging Removed Parts

As stated, when removing the valve tappets and push rods, as well as the ball ends and rocker arms, they should all either be so placed that they may be properly returned on assembly or else tagged so that the parts may be put together exactly as removed. The reason for this is that after a slight amount of service the ball joints on the push rods have worn to a seat on their respective rocker arms, and should they be interchanged they will not fit properly, and after a short time will become noisy.

Timing the Valves

Ordinarily, the valve timing may be checked up by noting the points where the valves open and close, with reference to the marks already on the face of the flywheel. First, the tappets are adjusted to the .004 in. clearance, as described. The floorboards are then removed and all the pet cocks, except that in No. 1 cylinder, are opened. Then proceed as follows:

1—Crank the engine slowly until a mark appears 5½ in. before the No. 1&6 L.C. mark. It is marked No. 1&6 Ex.O.

2—The first valve from the front of the engine should just be starting to open at this point, and this can be determined by resting the hand on the rocker arm and tappet and noting when the clearance is taken up.

3—Continue cranking until the exhaust valve closes. The pointer over the flywheel should rest over the mark No. 1&6 Ex.C.

If this is not the case, the gearcase cover should be removed, the camshaft gear drawn from mesh with the crankshaft gear, and turned until the exhaust valve on No. 1 cylinder just starts to open, when the pointer is on the mark No. 1&6 Ex.O. The camshaft should always be turned in the direction that it is rotated by the crankshaft gear, so that all backlash is removed. In fastening the gear in position by means of the cap screws, care must be taken not to turn the camshaft from its position.

New Timing Method

An absolutely new timing throughout may be effected by the use of the diagrams shown in Fig. 3, and this timing is independent of all marks on the flywheel. By this method the cylinder head and cylinder head gasket is removed, and the timing determined by the distance of the piston of No. 1 cylinder from the top edge of the cylinder head. The point where the inlet valve opens and closes depends upon whether mushroom or crown type tappets are used, and these distances in each case are shown in the table in Fig. 3. The exhaust valve, however, always opens when the piston is 4⅞ in. from the top of the cylinder, on the explosion stroke, and closes when it is 1 5/32 in. past the top of the cylinder on the intake stroke.

The face of the flywheel should be marked beneath the pointer in each of these positions, and in determining the position of the marks the flywheel should be turned in the direction of rotation when the engine is running.

The cylinder head and valve mechanism may then be replaced, the proper

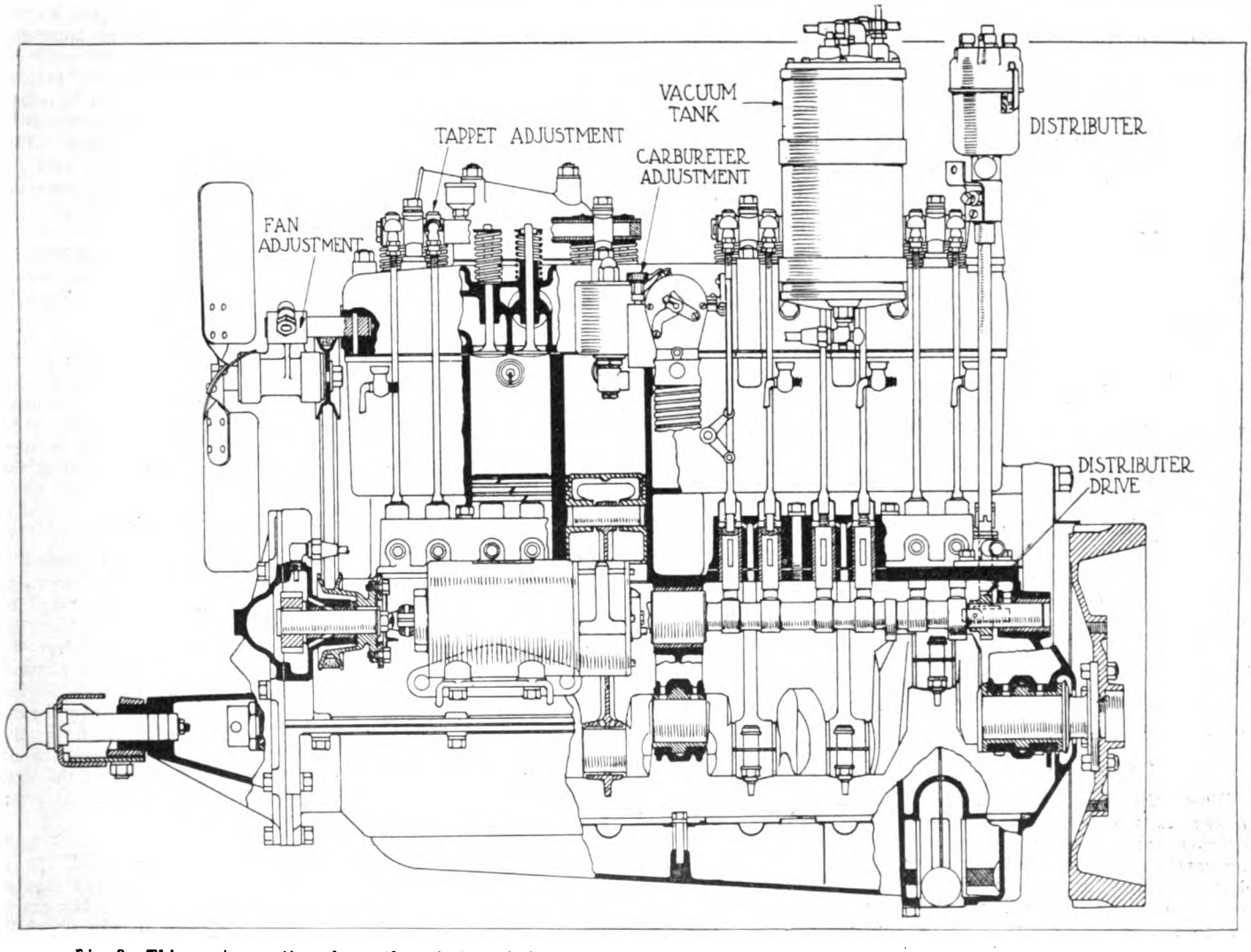


Fig. 2—This engine section shows the relation of the working parts after the clutch has been removed. Note the point of adjustment of the valves. All the relative valve parts should be kept together and not mixed on assembly; otherwise correct adjustment is difficult

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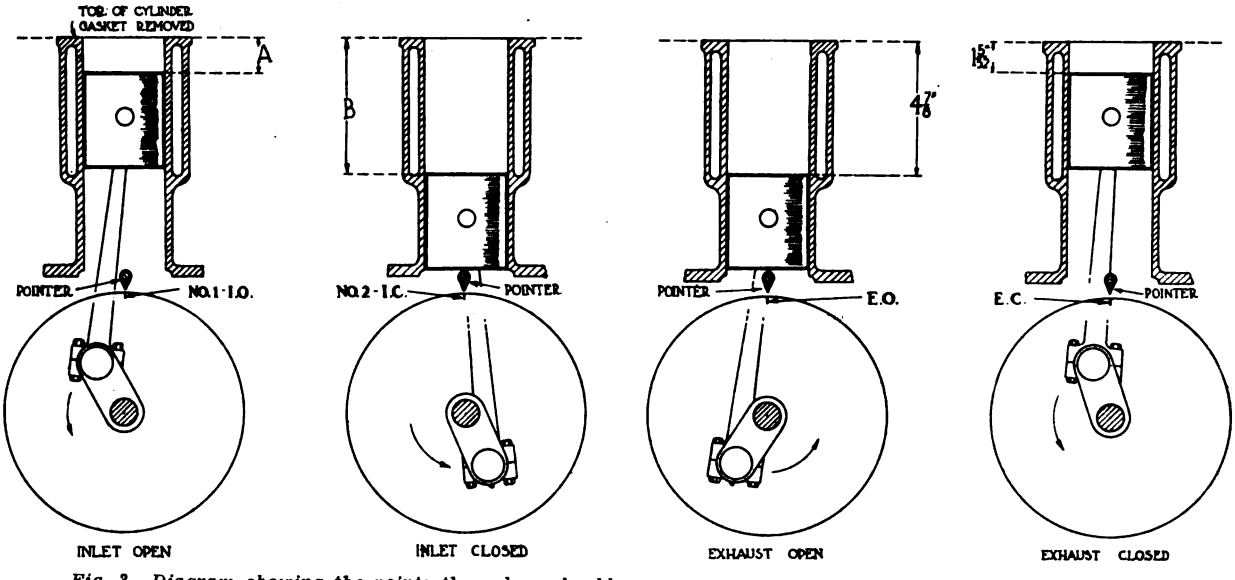


Fig. 3—Diagram showing the points the valves should open, as measured from the cylinder top. The two at the left show when the inlet valves should open and close; those at the right show the opening and closing of the exhaust valves. On mushroom tappets, A equals 1 13/64 in.; on crown, or non-revolving tappets, A equals 1 3/16 in. B equals 4 63/64 in. with mushroom tappets and 4 15/16 in. with crown tappets

clearance given to the valve tappets, and the camshaft gear placed in mesh with the crankshaft gear, so that the valves act in accordance with these marks.

Timing the Ignition—Miscellaneous Instructions

By removing the distributer housing cover the breaker points may be inspected and adjusted, or, if desired, the breaker may be removed without the use of tools. The points should have a clean, flat surface, and when properly adjusted, should have a break or gap of .015 to .020 in. These points are about the only part of the distributer that will require any attention, as the wear on both the distributer and brush is slight. However, a few drops of light oil should be placed on the distributer drive shaft every 1000 miles.

As is the case with all multi-cylinder engines, smooth running necessitates a uniform gap between all of the spark plug electrodes. This is a point that many mechanics overlook, and it is important that the plug points be set by gage, and not by eye. The proper setting is from .020 to .025 in. If the engine misses when running idle, or under a light load, the plug gaps should be made uniformly wider; and if missing under load is experienced, the plug points should be set closer together. This is, of course, providing that the carbureter is in adjustment, the valves are properly set and the compression is good.

Timing the Ignition

When the distributer has been removed, as was the case in removing the cylinder head, replacement of the parts automatically makes the timing correct. However, this may be quickly checked up by turning the ignition switch on, cranking the engine slowly by hand and stopping the instant the spark jumps to No. 1 plug. The mark No. 1&6 T.C. should have passed under the pointer over the flywheel and come to rest exactly ¾ in. beyond the pointer.

A complete setting throughout may be effected by pulling the spark control button on the dash half way out and cranking the engine until No. 1 cylinder is on the compression stroke. The flywheel should then be slowly turned in the running direction until the mark No. 1&6 T.C. has passed ¾ in. under the pointer over the flywheel. Then, after noting the position of the secondary wire leading to No. 1 spark plug, in the distributer head, remove the distributer head. The brass segment on the rotor should be just beneath the brass pin in the cap that is attached to No. 1 secondary wire. Likewise, the contact points should be just starting to open.

If this condition is not present, the spiral gears driving the breaker shaft should be unmeshed and remeshed in the proper position, though it is possible to loosen the lock nuts holding the breaker cam in position, and turn the cam until the points start to open and the distributer sector is beneath the brass pin of No. 1 secondary wire.

Clutch Adjustments

The clutch on this car is of the leather faced cone type, and in general occasional cleaning with gasoline, and the application of neat's-foot oil, will prevent or remove either slipping or grabbing. Dragging, however, may be caused by improper adjustment of the three clutch cushion springs underneath the surface of the clutch leather. These springs are adjusted by small nuts, held in place by cotter pins. When the clutch is engaged these nuts should be 1/32 in. from the steel stamping. If the distance is greater the clutch will tend to drag if less grabbing is possible.

Improper adjustment of the clutch brake will also cause the clutch to drag. When the clutch is engaged the distance between the rear end of the clutch hub and the clutch brake friction ring should be ¼ in. If it is less than this amount the clutch will not be fully released when the brake comes into action; and if it is more it may not come into action at all, thus permitting the clutch to spin and the gears to clash.

This space may be adjusted by loosening the lock nut on the clutch hub and screwing it as far forward as possible. After the lock washer has been pried loose the clutch brake flange may be screwed either forward or backward until it is ¼ in. from the friction ring. It should then be locked in this position.

Frequently trouble will be experienced from wear in the ball thrust bearings in the throwout yoke. This is ordinarily caused by the driver's riding the clutch. It is possible to lubricate this bearing to a certain extent by applying oil to the outside, while the engine is running, but the only positive method is to remove the clutch and pack the bearing with grease. Removal of the clutch is also necessary when relining or scraping the clutch leather is to be done.

To Remove the Clutch

Before the clutch can be removed it is necessary to remove the rear axle, so that the gearbox and clutch may be pulled out together. To remove the rear axle, it is simply necessary to hoist the rear end of the car free from the ground, disconnect the upper shackle bolts at the rear end of the springs, remove the brake rods at their point of attachment at the rear cross member frame hangers, break the universal joint connection at the rear of the gearbox, and pull the rear axle out to the rear.

The gearbox and clutch are next stripped prior to their removal. It is advisable to tape the ends of the starter wires after their removal from the starting switch, thus preventing the possibility of a short circuit. If desired, the brake and gear shifting levers may be removed from the gearbox housing,

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though this is only done when it is desired to get the parts out of the way, and when it is desired to inspect the gears.

Next the three bolts holding the end ball bearings to the flywheel are removed, so that nothing except the side arm bolts to the engine base hold the gearbox and clutch assembly in place. The two outside bolts on each of these arms should be removed first, and then holding the assembly in place, the upper inside bolts should be removed and the entire assembly swung out of place.

The parts of the clutch requiring particular attention are:

1—The clutch leather. This should not be charred or worn. If so, the leather should be scraped and neat's-foot oil applied. All rivets in the clutch face should be countersunk, so that they cannot come into contact with the flywheel and cause slipping.

2—The ball-bearings in the clutch hub and spindle. These should be removed, thoroughly cleaned and inspected. If loose or chipped, even in the smallest amount, the bearings should be rejected. And before replacement they should be thoroughly packed in grease, as it is difficult to reach these bearings with lubricant after assembly.

3—The rivets holding the clutch pressing to the clutch hub. Occasionally these will become loosened, due to careless driving with a rank clutch. The worn rivets should be removed, the holes reamed and larger rivets hot-riveted in place.

On assembly, the bar of iron, bent as shown in Fig. 5, caught behind the gearbox arms, will be found to hold the clutch spring in the compressed position until the assembly can be slipped and bolted into place.

The clutch springs and throwout yoke should be adjusted as directed under "Clutch Adjustments," after the brake and shifting levers, etc., have been replaced. One point should be carefully noted in attaching the universal housing to the rear of the gearbox. If the shims between the universal joint and the torque tube are not replaced exactly as removed (see Fig. 6), free action of the universal joint will be prevented. This will quickly result in a loosening of the rivets holding the end castings to each end of the torque tube, necessitating a complete tearing down of the rear axle assembly and replacement of new rivets.

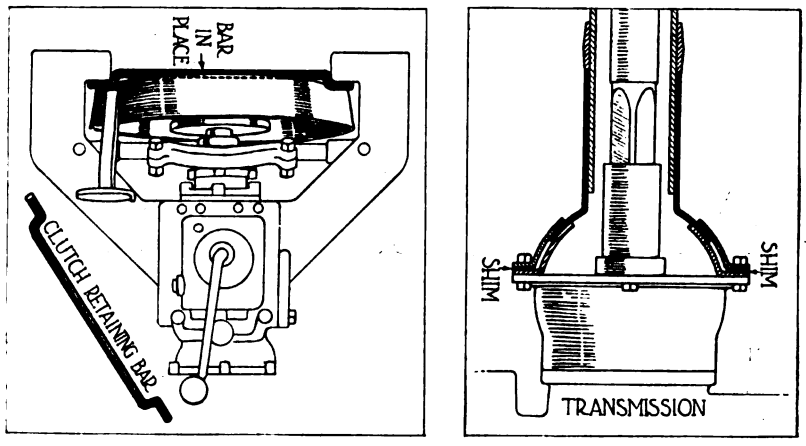


Fig. 5—Left—When removing or replacing the clutch, it may be held in the compressed position by a clutch-retaining bar caught behind the bosses on the gearbox arms. Fig. 6—Right—On assembling the universal at the rear of the gearbox great care must be taken in making certain that the shim is placed between the two parts of the rear shell, as shown. Otherwise the bell on the propeller shaft will be pinched and universal action prevented

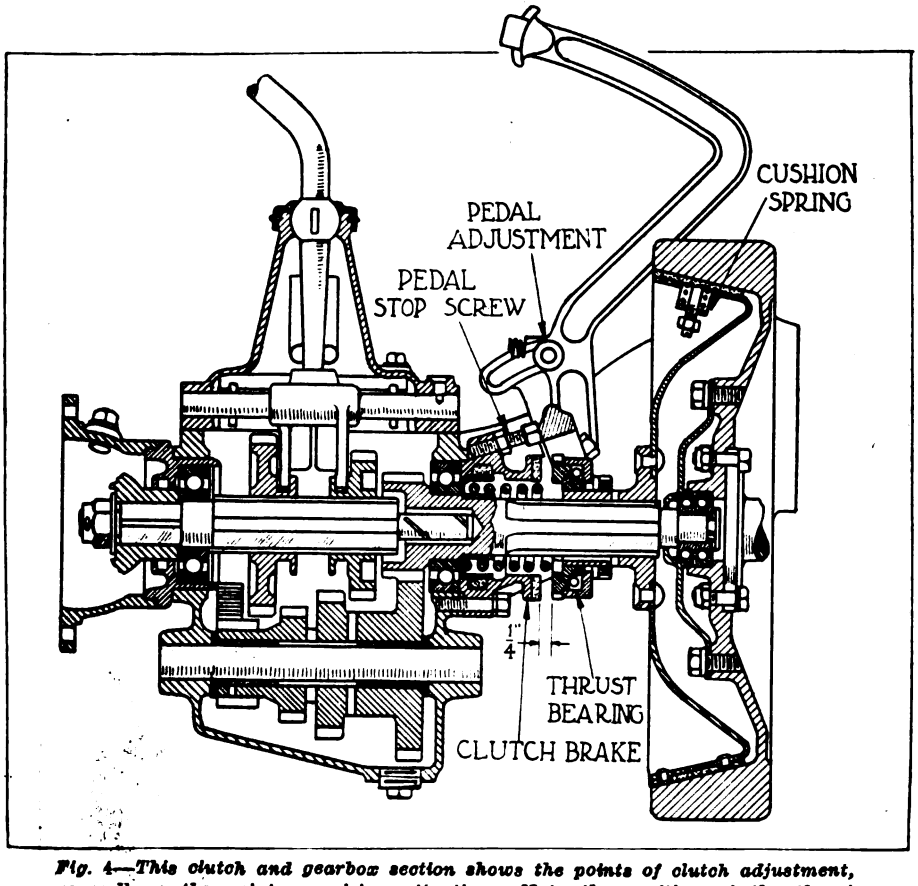


Fig. 4—This clutch and gearbox section shows the points of clutch adjustment, as well as the points requiring attention. Note the position of the thrust bearings

Deliver Fords Direct to Dealers

ST. LOUIS, MO., Dec. 17—Because of a scarcity of labor, the Ford assembly plant here is delivering chassis and bodies separately to local dealers, making an allowance to the dealer.

Association to Control Rubber

NEW YORK, Dec. 15—The Rubber Association of America, made up of the principal rubber manufacturers, has made an arrangement with the Government whereby the association operating through a committee of which Charles T. Wilson is chairman will control rubber imports under the supervision of the Government. The association will act as a consignee of importations which will be released when the purchaser has complied with certain regulations. A principal part of these regulations is a guarantee that the rubber is to be used by the manufacturer himself who buys it and is not to be exported.

Navy Wants Flying Corps Mechanics

WASHINGTON, Dec. 15—The Navy Department wants 2000 men at once. An emergency call has been sent out for them. They are wanted for the ground personnel of the Navy Flying Corps. Their principal qualification should be skill in mechanical work; they must be first-class mechanics. After enlistment they will be rated as machinists' mates, carpenters' mates, quartermasters, coppersmiths and blacksmiths. Each class will be given special training. Applicants must be between the ages of 21 and 35 and it is stated that promotions will be made as rapidly as the progress of the applicant warrants.

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Give Yourself

A Christmas Present

PRESENT YOURSELF with a new plan for keeping your literature in good condition. If you had been trained at great expense, had been fathered and coddled by brainy men, had been sent out to do a man's work and then found that you were relegated to a corner where you never even saw the light of day, wouldn't you be sore? We bet you would.

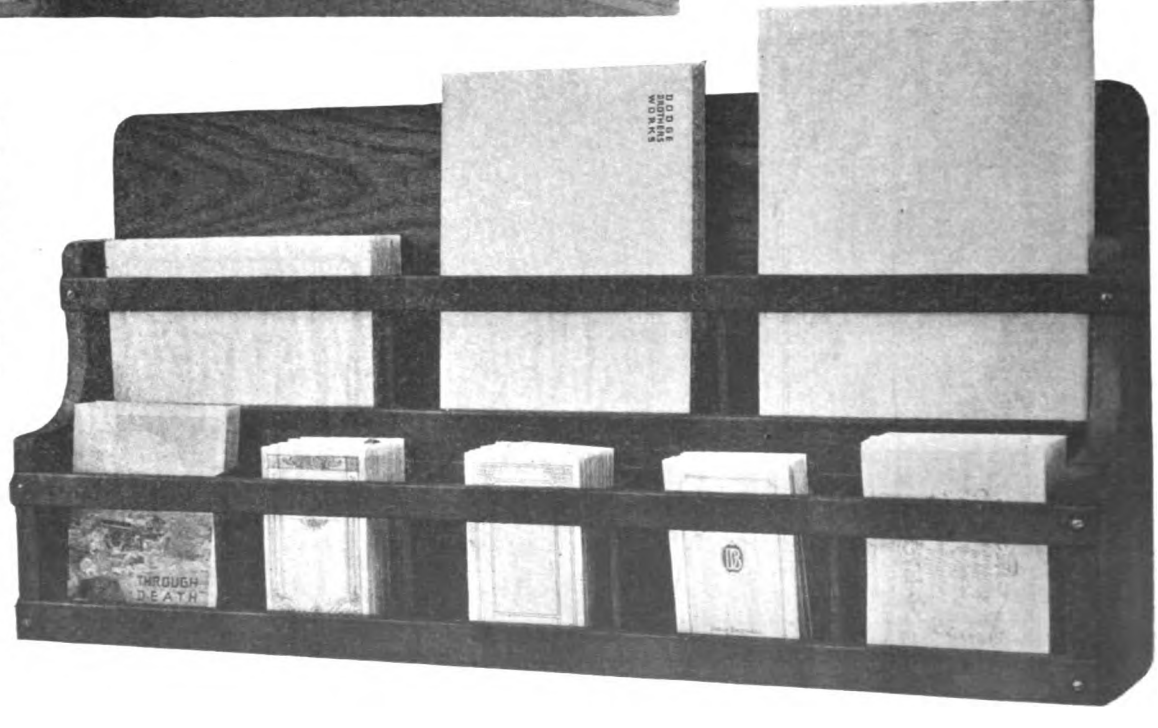
How do you think some of this factory literature feels when it finds itself associating with rats under the back stairs? It has been slept over by high-salaried men, has cost a lot of money, is capable of doing yeomen service—and never gets a chance.

Just because the literature never makes a fuss don't be harsh with it. Give it a chance. Get it out in the light so it can be friendly with the public. And, above all, KEEP IT IN ORDER.



The rack below is supplied by Dodge Bros. to dealers for $5. Worth it! The partitions are movable so that the rack can be made to fit anything. And the company's advertising director, George Phelps, says he's sure the Dodges wouldn't be at all worried if any other than a Dodge dealer copied the idea and built a rack himself. All you need are boards, saw, hammer, nails. So there now! What excuse have you for not having a literature rack?

The piles of literature in the picture above show how the Prest-O-Lite company recommends that dealers use literature. Not much use of saying much about the plan so long as the picture tells the story so well



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Get System in Your Business

1918 Is Nearly Here—Get Started Right

THE problem of every business man for the duration of the war is to KNOW things about his business.

You have four chances:

1. Close up shop.
2. Run at a loss.
3. Run at an even break.
4. Run at a profit.

If you take chance 1 you don't need to KNOW about your business. If you are content to run at a loss, it doesn't matter about your system; the less system you have the bigger losses you can make. If you want to run at an even break, system isn't as important as it might be; but if you want to run at a profit you MUST HAVE SYSTEM.

And don't forget this: Be a business man! Run the business for what there is in it or else quit! It is neither businesslike nor patriotic to run at a loss. A losing business is only a drag on our national life.

You should DO THE BEST YOU CAN. And you can't do your best unless you KNOW all about your business.

Has some department of your business begun to shrink?

Has some department begun to gain?

Have you a good chance to make a better showing in some department?

How much more are you paying for labor than you paid eight months ago?

What has happened to the percentage of your overhead to gross business?

Is your overhead going up or down?

How much is labor COSTING you per hour and what are you GETTING for it?

Unless you KNOW these things how can you have any idea where you are going?

If you have not a system now that tells you what has happened in 1917, GET ONE. Consult your banker if you have no other friend who knows accounting. Perhaps he can refer you to one of his clerks who will START YOU RIGHT.

And you can't do better than investigate the MOTOR WORLD Simplified System of Accounting. It can be run in a one-man business. The boss can keep the books. Or it can be used in a big business. It works both ways.

It is all in one book. There is no "set of books" to cause confusion. Everything is in ONE binder. If you take the book under your arm and carry it home you have your entire accounting records.

And the system complete costs only $15.

With it goes a book that will tell you in simple English more about accounting than some accounting teachers could tell you in years. The book itself is a wonderful education.

Write to MOTOR WORLD NOW and get started right. Don't go into 1918 without KNOWING how you will come out of 1918.

Keep Track of Your Tires and Tubes

The card below is one of a number of forms for taking care of business records. Ask about them

Casing and Tube Record

Size _____ Type _____ Make _____

Date rec'd	Serial No.	Date sold	To whom	Remarks

Price, $7.50 per thousand. The card is 4 by 6 and printed on both sides

THE casing and tube record is a specialized form of inventory card for cars and tubes. The regular inventory card may be used for keeping track of this stock, but this special card is much more satisfactory.

A separate card is made out for each size and style of casing or tube. That is to say, that 34 x 4 Goodyear, non-skid, would have a card, and Goodyear 34 x 4 plain tread would have a separate card.

When half a dozen 34 x 4 non-skid tires are received the date is entered in the left-hand column, the serial number of each tire is placed in the next column and then when each tire is sold the date is put in the third column, the purchases in the next column and the last column is reserved for remarks. If the purchaser should bring back one of these tires for an adjustment and an adjustment or repair should be made it is desirable to note what was done in the remark column.

It would seem that everyone is fairly familiar with the desirability of keeping a record of this work. The name of the purchaser and the serial number of the tire as well as the date sold are certainly very essential if intelligent adjustments are to be made and the dealer not imposed upon by a drastic customer. Both sides of the card are printed.

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Winter Business

Let's ALL Boost Winter Business

Live Selling Winter Accessories

ALCOHOL	GLOVES	DAYTON WIRE WHEELS	IMPERIAL PRIMERS
PRIMING PLUGS	ROBES	STOP-A-LEAK (Radiator Cement)	PYRENE
ENGINE and RADIATOR ROBES	WARNER LENZ	WILMO MANIFOLDS	C. & S. SPOT LAMP
THERMITE	FORD CURTAIN LIGHTS	JOHNSON CARBON REMOVER	FORD DAYTON WIRE WHEELS
ANTI-FREEZE	CAR HEATERS	MOTO METERS	TOP DRESSING
WIND SHIELD CLEANERS	VEEDOL	COLUMBIA STORAGE BATTERIES	FORD FIRESTONE DEMOUNTABLE WHEELS
BATTERY HYDRO-METERS	K. & W. FORD LOCK	LEAK-PROOF PISTON RINGS	CIGAR LIGHTERS
AMBERSTEAM BODY POLISH	WHIRLING FLAGS	KIMBALL JACKS	KLAXON HORNS
	BETHLEHEM PLUGS		ELECTRIC LAMP BULB
	CHAINS		
	RUNNING BOARD MATS		
	CLARK HEATERS		

"Winter Driving Keeps Business Thriving"

Winter Business
"Cold Weather Made Profitable"

TURN winter into Welcome Profits. We have a big stock of fast-selling Automobile Accessories. They will move this winter bigger than ever. Reasons: More Cars, Better Roads, Larger number Commercial Cars. Ohio during 1916, registered 260,000 Automobiles. 1917 will see 345,000 Automobiles and Trucks in use. You can get Your Portion of this increase business if you Stock and Display a few of the fast-selling Winter Accessories. Get our Catalog. We will help you Make Money this winter! Cash in on the demand. It can be done.

The Justus & Parker Co.

"Friends of The Automobile Trade"

COLUMBUS, OHIO

OFFICIAL LIST

1c PAID
COLUMBUS, OHIO
PERMIT No. 105



The Motor World Pub. Co.

New York

N. Y.

Here's How
An Ohio Jobber Is Boosting Winter Business

DEAR MR. JOBBER,
Everywhere,
U. S. A.

Take a look over at the left and see how the Justus & Parker Co., Columbus, Ohio, is boosting Winter Business in that state. The jobber has made up a folder of winter accessories and is sending it to the dealers and garagemen in that section.

Every dealer who looks at this folder sees at once that it isn't necessary to go through winter with a loss. He gets the Winter Business idea.

And then he sees that there are certain goods he can sell.

What is the result?

Dealers everywhere are helped. The jobber's business is stimulated. The whole trade is helped.

This is something that every jobber should be doing. If the dealer does more business the jobber does more business, the manufacturer does more business, there are more men employed in factories, the employees have more to spend, more of them can spend money on cars and capital keeps moving around the circle.

DEAR MR. DEALER,
Everywhere,
U. S. A.

Look at the folder at the left, issued by the Justus & Parker Co. This company is trying to boost its Winter Business and make more money. But it can't make money unless YOU make money. And if you make money the whole trade makes money. No industry can prosper without prosperous dealers.

Accept this folder as good Winter Business advice. Make an effort to sell the goods listed in this folder. Study all other Winter Business folders that jobbers send to you. They contain ideas that will make money for YOU.

And if you should need some Winter Business selling ideas to move these goods ask the jobbers. They WANT TO HELP.

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Let Us All Read This Winter Business Story Together



LET'S figure out a way to get the car owner to spend some money with us. One thing we know: There are many car owners who are going to hang on to the old car for another year. These people should need a lot of things in the line of accessories and supplies.

If we run a garage and repair-shop, sell cars and supplies and have facilities for supplying all the owner's needs we are fortunate. We should make a lot of money.

As a starter, let us see if we can't figure out a standard plan for snooping around these cars that are going to be run another year with the idea of suggesting to the owner things he needs—but won't perhaps know he needs until we make the suggestion to him.

1—Look at his tires. Give one of them a kick, sort of careless like, and say: "Are you getting good service from your tires?" If he is satisfied or dissatisfied the chances are he'll be ready to talk—and talk a lot. See if there aren't some things he should have done to these tires. If there are spots that need fixing tell him why a repair now saves a big bill later on. Teach him the wisdom of conservation.

2—While talking about tires switch him over to the condition of his motor and other internal machinery. Ask him about carbon, knocks, rattles and all sorts of symptoms of trouble. He may have all sorts of diseases and not know it. Did you ever read a patent medicine circular and, when you got through, imagine you had all the diseases on the calendar? Cite a few symptoms to the car owner—but don't bunco him. Be fair and honest. Nothing ever was gained by unfair treatment. His future business is your necessity. But many owners, who have given their cars hard service, actually have to be sold on the necessity for repairs.

3—Look at his bumper. If it is in such shape that a coat of paint would help make the car look like new suggest that he buy one of those small cans of bumper paint and a brush, and do the job himself. The "paint it yourself" idea will appeal to him.

4—Inspect the lamps. Does he need new bulbs? Or extra bulbs?

5—How is his speedometer? Maybe it should be tested for accuracy. In case you are not equipped to do this and there is a speedometer service station that is equipped, suggest that while you are fixing the car you be permitted to have this test made.

6.—The same applied to his oil gage. It's no good if it isn't right.

7—And the gasoline gage. What's the use of having a gasoline gage that is liable to tell a lie and leave you in a hole some dark night?

8—How is his battery? And what is he going to do with the battery this winter? Isn't there a chance there for you to look it over, or store it all winter?

9—Has he a jack for taking the strain off the tires in case the car is let to stand for any length of time? He should have one. And he can't do better than let you take the car into your garage and care for it in case he isn't going to use it regularly. Then you can watch the battery, tires and everything else. Tire pressure should be let down to about 15 pounds when the wheels are jacked up.

10—The addition of a bumper on the rear serves two purposes. It prevents damage and adds to the looks of the car.

11—New tire covers are like a new necktie. They make the car look better.

12—New tire straps come cheap and add to looks. Also, if they are nearly broken they may mean a lost tire some day.

13—How about his tools? Never overlook his tool kit! How many men don't lose tools? Once you get a look into his tool kit you can suggest a half dozen things he has needed many times but might not think of without your suggestion.

14—How is the carpet in the car? Almost any car can stand a new carpet.

15—Does his carbureter need adjusting?

16—Does his vacuum tank need cleaning?

17—How is his generator?

18—How are his brakes? Do they need relining?

19—And the clutch? Isn't it a measure of safety to have it relined?

20—A coat of paint and a few touches here and there will make the car look like new.

Really, the best thing for the car owner to do is to let you take the car into your shop or garage and give it a real thorough inspection. Then you can tell him what needs to be done to make the car almost as good as new. Then it surely will run another season.

So far as we can see every man who proposes to run his car another year can't do any other way.

Talk with him on the basis we have just outlined, tell him he has time and you have time now, and that this is the time to get the job done.

Send to your whole trade a letter along these same lines. Numerous letters of this kind have been printed in Motor World, but it is easy for you to write one of your own.

DO IT NOW!

Dealers!
Garagemen!
Salesmen!
Jobbers!
Factories!

Let's hear from you!

What are you doing to boost Winter Business?

Let's have YOUR idea for use in this Winter Business Department. Ideas are what is going to take the slump out of winter. If you have a good idea slip it along. Uncover it. Let it shine. Help boost for the big cause. The war has made things bad enough without any winter. Let's beat 'em both!



Christmas Gifts

for the owner of Dodge Brothers Motor Car

Radiator Cover of fleece-lined mulesktn	$5.00
Nickel Tire Pressure Gauge	1.00
Steel Tire Chains, a necessity for Winter driving, 33x3½	5.50
33x4	6.50
Extension for Gear-Shift Lever, nickel or black Japan	1.00
Black Enameled Spotlight, with adjustable Mirroscope	7.30
Windshield Cleaner, for snowy and rainy days	1.25
6 Months supply of Dodge Brothers Lubricants	4.67

COLT-STRATTON COMPANY
PARTS STOCK ROOM AND SERVICE STATION
109 WEST 64TH STREET (6TH FLOOR) NEW YORK CITY

Phone: Columbus 7101

Telephone or Mail Orders will Receive Prompt Attention

COLT-STRATTON is a big car dealer in New York City—but NOT TOO BIG to make money out of Winter Accessories. This Christmas accessory card is only a part of this company's winter activity. It is interesting to note that Colt-Stratton's gross business has not fallen off because of war and winter. Live methods turn the trick

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Editorial Observation

The Work of War

WAR is a many-sided job. The nation that wins a war is the one that takes care of all sides of the job.

The greatest danger in war is that not all sides will be taken care of.

It is easy to go off at wrong tangents, to work hard but in the wrong direction, to concentrate so much on one point that all the concentration is later nullified.

WE MUST WIN THIS WAR.

TO WIN IT WE MUST OPERATE EFFICIENTLY THROUGHOUT OUR NATION.

This is a time when strong minds are needed. People must not lose their heads. They must not lose heart. They must not lose resources or time.

We have been in this war just about long enough for many people to begin to sink down under the strain. We mustn't do it.

This strain may cause some people to wish to throw aside everything but the actual manufacture of powder and guns and the shipping of soldiers. This is not efficient work.

We must do the war work and other things, too. It is, as was said at the beginning, a job of many sides.

It is as though we were in a rowboat in a rough sea that was likely to swamp the boat. The water is pouring in and we must bail it out. We must also row and keep the boat headed both into the sea and for land. Can we afford to neglect either rowing or bailing?

We might drop everything and bail—but how long would we last?

Also, we might drop everything but fighting—but how long could we fight?

It is not alone the common people who are likely to lose their heads. It is business people and officials, even big men in government—which was demonstrated when it was proposed to curtail this industry, a mistaken plan that was soon dropped.

The curtailment idea came in a moment of hysteria. Men lost their heads. They made decisions based upon only part of the facts. They proposed to cut out some of the rowing and concentrate on bailing instead of giving each bailer a bigger pail and letting the oarsmen row.

Then there was the gasoline hysteria. Some ordinarily level-headed men scattered a lot of damaging misinformation that tended to upset everything. But the presentation of facts and the counsel of cool heads calmed them down.

Even the motor car industry itself had a touch of this hysteria. It was about to propose to the government that the factories be turned over in a bunch to the government when the cool head of a leader saved the industry from itself—and saved it for the nation.

And then an efficiency man in Washington, who has done good work in some lines, proposes certain other things without a knowledge of the facts. Lacking a full knowledge of what has been done and undone he sets out by himself to repeat one of the hysterias that have already been passed through once by the nation as a whole.

There are some dealers who lie down at this time, who begin to cut down on their mechanical departments, who make no effort to sell cars, who believe they are serving their country best if they don't do much of anything except wander around and around in a circle of moods and pessimism and wonder when the war is going to end.

If they don't buck up they will find the answer sooner than they expected—and they won't like it.

It is all right to say that everything must be done to win the war, but a great deal seems to depend upon what that "everything" means. Of course we must fight! That goes without saying. But a bigger test comes when we are called upon to keep up the fight and at the same time keep business from falling down. The "everything" means more action —not less.

The root of the whole war leads right back into the base of business. We care for both. We must not lose sight of either side of the job. While we are making guns on one side of the shop we must keep our own business going on the other. While as men we are buying bonds we must at the same time not be misers in civic life. While we are giving up our skilled men for war work we must be finding other men and women to fill their places.

We cannot have business as usual but we can have business.

Just as the war has demanded that we have a stronger nation so must we have stronger men.

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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome—especially if they are timely and brief.—THE EDITOR.

Pacific Coast Trade Reasonably Good

Although Some Dealers Fear Reduction of Allotments—San Francisco Is Experiencing Labor Shortage

Editor Motor World: Trade conditions on the coast are reasonably good, considering general conditions. I know a good many of the dealers are scared and of course it is a serious thing if the dealers' allotment of cars is cut 50 per cent.

The used car market has improved considerably. Dealers are allowing only very little more than the car is worth and quite a number of them are repairing and painting the car before selling, thereby getting better prices.

I believe the articles in Motor World on the used business have had a splendid effect in waking up the car dealer, by making him handle the used car business on business lines.

Also, a great many dealers and accessory jobbers as well fear a difficulty in getting supplies and are getting better prices, figuring it is better to have the goods on the shelf than make a sale with little or no profit.

Old Cars Being Overhauled

The registrations are ahead of last year. As you know the country is absorbing a great many cars and if the dealers in San Francisco are not doing a great deal locally, they are through their sub-agents keeping up their sales.

I am of the opinion that a good many of the city people are having their cars overhauled instead of purchasing new models. I arrived at this conclusion by the fact that *all the repairers of any description have more work than they can handle.* I believe that there are cars enough on the coast to last the trade 60 days—that is, if shipments are stopped at once.

I am considerably alarmed about the position bankers will take about the advance of money for cars. There seems to be somewhat of a scare in some quarters.

Of course the labor situation is rather serious. Many men have been drafted and in the repair line I have strongly urged each shop to take in several young boys, making what we would call apprentices. The iron trades and shipbuilding works are to-day short 10,000 men for San Francisco alone. They draw quite a bit from the automobile industry, not because the pay is greater, but because of the opportunity of working overtime. A good many men are coming in from the country who claim to be repairmen and are really a poor excuse for one. Neverth less, they are being broken in, somewhat at the expense of the dealer as well as the consumer. But the consuming public realizes the situation and is very fair about those matters.

I hope I have been able to give you some information. It is difficult to answer these questions without a thorough canvass of the trade, and this is difficult at the present time, because the dealers have become alarmed of so many inquiries and refuse to divulge anything, being afraid the Government may use the information to their disadvantage.

The association work is going along very well. Speaking of the State Association, they are having large meetings throughout the State and believe the State membership now has passed the two thousand mark. Mr. Martland, the secretary, is really doing a wonderful work. The South has taken to association work better than the North, and if conditions are as true as represented, they are ahead of us.

Dealers Cutting Prices

Our activities have resulted in securing all the jobbers as "wholesale jobbers only" with the exception of Weinstock-Nichols Co., who do both a large wholesale and retail business. A good deal of the retail business is done at cut-rate or discount prices to those customers owning five cars or more. That is an abuse we have suffered from for years.

You can imagine how difficult it is for a smaller dealer to get his price when his customer can go to a very large, perfectly kept store and buy the goods at less money. It seems to me that the Jobbers' Association should be interested in keeping the jobbing business clean.

We had a large meeting of the San Francisco Automobile Trades Association Wednesday evening at the St. Francis Hotel. The dealers were very strongly represented. Mr. Miner Chipman, efficiency engineer, gave us one of the most wonderful talks I have ever heard.

Our discussion was on the lines as published in your last issue: "Don't get scared, but get mighty busy and discover some new way of keeping business going." You would be surprised at those meetings how often the name of Motor World is mentioned. You are quoted on almost everything. Rarely is another magazine name mentioned.

After a man has read Motor World for six months he is an easy man to talk to. —A. D'Ettel, Secretary-Treasurer, San Francisco Automobile Trades Association, San Francisco.

Anticipates Big Demand for Used Cars

Editor Motor World: Outside of two weeks in October our business has been very good. There is some feeling of depression which we attribute to the extensive canvass made on the Liberty Loan proposition.

In anticipation of a lull in our fall business we checked up our sales force and have kept after them constantly, through our daily meetings. We have brought forth very satisfactory results in the sale and delivery of new cars.

The dealers, generally, in Buffalo, I believe, are fairly well stocked with used cars. We, ourselves, have a few more than usual at this time of year, but at the same time we are willing to trade still further, as I am of the opinion that the used cars will be very much in demand next spring in this locality, especially. I say this because everything is going full blast in Buffalo. Workmen are earning more money than ever before and as they are of a class which are not inclined to save, I believe they will wake up in the spring with more money than they have ever been able to accumulate. This class should make very good prospects for used cars or low-priced make of cars.

There is no doubt in my mind but what our allotment of cars for this section will be cut down. This naturally will make a shortage to some of our smaller and newer dealers. Of course, the matter of delivery from the factory to us is still a matter of speculation. We may possibly receive these cars by rail and still we may be obliged to drive them over the roads.—A. W. Haile Motor Co., Ralph E. Brown, Buffalo.

Roamer Uses Duesenberg Engine

KALAMAZOO, MICH., Dec. 15—The Barley Motor Car Co. is the first user of the Duesenberg engine, which is fitted to the new 6-90 models for 1918. The price of this car, with a six-passenger touring body, is $3,150. The following is the revised price list on Roamer models:

Model 6-54

4-passenger touring	$2095
2-4-passenger roadster	2295
Town Body	3250
Standard Sedan	3250
Touring Sedan	3250

Model 6-45

4-passenger touring	$1950
2-4-passenger roadster	2150
Town Body	3150
Standard Sedan	3150
Touring Sedan	3150

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The RETAIL NEWS

MIDDLE WEST

J. F. Richardson, 912 Ogden Ave., Superior, Wis., has established a branch plant at 210 East Superior Street, Duluth, to accommodate 50 cars.

Arthur C. Rathjen, Jefferson, Wis., has opened a tire repair and vulcanizing shop and will deal in tires and tubes.

William Paape, Jefferson, Wis., has exchanged the Palace Garage for a 60-acre farm of Henry Meyer. Meyer will conduct the garage.

Milwaukee Bethlehem Sales Co., Milwaukee, has been organized to sell the Bethlehem truck.

Koege Bros., Rib Lake, Wis., are new Oakland dealers in Taylor County, Wis.

The Paul Peters Co., Antigo, Wis., tire dealer and repairer, has taken the Goodyear and Republic tires agency in Langlade County. The service station is being equipped with new machinery.

Joseph E. Simpson, 524 West Main Street, Waukesha, Wis., is erecting a fireproof addition, 60 x 75, to his garage and service station.

William E. Pitts will build a one-story brick public garage, 57 x 160, on Warren Avenue, between Fourth and Greenwood, Detroit, to cost $12,000.

E. Brown & Sons, Sandusky, have moved to their new garage.

United Garage & Service Co., Inc., Detroit, has been incorporated for $10,000 by Clara M. Rankin, Edward R. Rankin and George W. Weeks.

W. J. Baird Machinery Co., Detroit, has taken a ten-year lease on the six-story, 60 x 100, building at 265 Jefferson Avenue and Brush Street. The company's manufacturing, repair and service departments will be continued for a time at the present location, 54 Jefferson Street.

J. L. Lippsett Ford Store, Sault Ste. Marie, Mich., has completed an addition, making a total of 27,225 sq. ft. of floor space.

J. W. Mulholland, Greenville, Mich., has moved his garage to West Williams Street. He is installing new machinery.

Jonesville Garage, Hillsdale, Mich., will be reopened by Pinkham & Wright.

Lee Tire & Supply Co., Grand Rapids, has moved to 30 Ionia Avenue, S. W.

M. J. Moore Co., distributer of the Chevrolet and Stearns-Knight in Hamilton, Ohio, has moved to Main Street. Improvements have been made.

Sturtevant-Jones Co., 1214 Jefferson Avenue, Toledo, has opened a Marmon salesroom and a second floor show room for close inspection of the car.

Clinton Auto Sales Co., St. Johns, Mich., will be managed by E. S. Jolley under the style Buick Garage.

Valley City Motorcar Co., Grand Rapids, has moved to new quarters. It handles the Dodge Brothers car.

Nank & Priehs, agency for the Buick and Cadillac, Mt. Clemens, Mich., have moved to Macomb Street.

Northeastern Oil & Gas Co., Cleveland, has been incorporated for $1,000 by S. H. Tolles and W. T. Kinder.

Cleveland Auto Body & Radiator Repair Co., Cleveland, has been incorporated for $10,000 by Leo Oppenheim and Arthur Krause.

Progressive Sheet Metal Co., Cincinnati, has been incorporated for $50,000 by Fred Lemmert and Fred Lemmert, Jr.

Dixie Sales Co., Dayton, has been incorporated for $35,000 by Frank M. Krebs and John W. Hanby to sell supplies.

Auto Realty Co., Cincinnati, has been incorporated for $20,000 by W. M. Perin and L. S. Colter.

Franklin Motor Car Co., Cincinnati, will construct a three-story fireproof salesroom and garage.

S. G. Castle has bought an interest in the Flint Auto Service, Flint, Mich. Additional equipment has been added.

J. H. Moller, Quincy, Ill., president of the Moller Motor Sales Co., has leased the building at 506 North Sixth Street for a garage. There will be a repair and storage department, a sales agency and accessory store.

Horst & Strieter Co., Moline, Ill., has opened a three-story garage, 64 x 125, costing $40,000. The firm will distribute Fords and do a storage and repair business.

Ogden Motor Supply Co., Chicago, has been incorporated for $100,000 by Frank Posvic, Otto Ring and James Pavlicek.

Durand Auto Co., Durand, Mich., is owned solely by C. E. Van Slyke. E. Henry has retired.

Caro Motor Sales Co., Caro, Mich., has moved to its new building.

Oakland Garage Co., Ypsilanti, Mich., has purchased the business and equipment of the Oakland Garage on Huron Street. The business will be carried on by F. E. McWhirter and C. J. Hall. The agency for Republic trucks has been secured.

Louis Bouchard, Holly, Mich., has leased the Dixie Garage service station.

W. M. Healey, Boyne City, Mich., has bought A. F. Hays' interest in the vulcanizing shop of Healey & Hays and has moved to 231 Water Street.

International Rubber Sales Co. has opened a branch at 509 Division Avenue, Grand Rapids, under the direction of F. C. Williams.

R. Perkins and C. Myers, Lansing, have rented the Shaull garage on East Lovett Street, Charlotte, Mich.

New Garages

George F. Kreisler.....Lowell, Mich.
Michigan Auto Co.....Sixth Street, Calumet
Jos. C. St. Clair.....Leslie, Mich.
Heaton & Hooper Garage
Lake Street, Boyne City, Mich.

PACIFIC COAST

Ruthven & Cerrano have opened a garage at 230 Pearl Street, Monterey, Cal., and will handle the Dort.

The Jeffsen Garage, Watsonville, Cal., has opened branches at Salinas and Santa Cruz and established Oldsmobile and Chevrolet salesrooms in each.

Vollmer's Garage, 225 Main Street, Salinas, Cal., has been opened, and handles the Maxwell, Hupmobile and Packard.

Iverson Bros. have opened a fully equipped machine shop at Gabiland and Monterey Streets, Salinas, Cal.

The Savoy Garage, 3069 East Fourteenth Street, Oakland, is being remodeled to comply with the new Ford Motor Co. policy for authorized Ford dealers.

F. Macfarlane and H. L. Gulick of the Watsonville Cyclery have entered the supply business and opened a vulcanizing plant at 462 Main Street, Watsonville, Cal.

The B. & D. Co., Inc., 1655 Van Ness Avenue, San Francisco, has leased the two adjoining buildings. The plant is service station for the Stromberg carbureter, the Delco and Atwater Kent systems.

Alex Murdock has become sole owner of the Piedmont Garage, 4129 Piedmont Avenue, Oakland.

The Murray Manufacturing Co. has purchased the garage at 1367 Washington Avenue, San Leandro, Cal.

C. J. Rector and M. L. Wilkins, New Monterey, Cal., have purchased the New Monterey Garage from J. Bussey and will handle the Chevrolet and Oldsmobile for the Monterey Peninsula. Salesrooms have been added to the garage.

The Pacific Vulcanizing Works has moved to larger quarters in the Federal Hotel Building, Monterey, Cal.

A. J. Trigwell of the San Jose Auto Brokerage Co., has opened a repair shop at 223, the Alameda, San Jose.

The Gilroy Garage has moved to 1 Monterey Street, Gilroy, Cal., and has opened a Buick salesroom.

O. F. Lamb has purchased the controlling interest of Lamb & Toombs and will operate a Willard Storage Battery service station at 242 Monterey Street, Gilroy, Cal.

The Gilroy Rubber Works has opened a vulcanizing plant on Monterey Street, Gilroy, Cal.

Jack Simas, formerly with the Hollister Garage, has opened a repair shop at 347 Fourth Avenue, Hollister, Cal.

Calif & Todd have opened a Goodyear tire service station and accessory store at 1S42 Van Ness Avenue, San Francisco.

Louie A. Pacheco has leased the former Stutz salesrooms in Oakland.

F. T. Mooney, E. M. Murray and E. R. Smith have organized the Crow-Elkhart Sales Co., San Francisco, and opened salesrooms at 714 Van Ness Avenue. Smith acts as sales manager.

Watsonville Garage & Pioneer Vulcanizing Works has moved to 454 Main Street, Watsonville, Cal.

B. L. Conrey has opened a vulcanizing and tire shop at 331 Main Street, Salinas, Cal., under the style Efficiency Tire Station. H. L. Scott is manager.

J. F. Eaton has opened Eaton's Repair Shop at 14 East Gabiland Street, Salinas, Cal.

R. S. Goodwin, San Juan, Cal., has opened the Service Garage and secured the Fisk tire agency.

W. E. Spoon has sold the City Garage in Pacific Grove, Cal., and has opened the Monterey Garage in Monterey, Cal., as a Ford salesroom and service station.

A. G. Winston, owner of the Winston Auto Co., Monterey, Cal., has organized the Monterey Battery and Vulcanizing Co. to specialize on Willard batteries and U. S. tires.

Mellen & Wilson have purchased Cedars Garage at Santa Cruz, and will handle the Studebaker and Cadillac.

C. B. Kenyon has bought the business of Louthain & Kenyon, Buick dealers, Santa Cruz.

The Santa Cruz Battery Co., A. B. Stewart manager, has opened a Willard service station at Santa Cruz, and a branch in Watsonville.

R. W. Keller has opened a vulcanizing plant and tire salesroom at 9 Walnut Avenue, Santa Cruz.

Portwood & Nickerson, formerly with the Overland Agency in Modesto, Cal., have opened salesrooms at 229 Main Street, Salinas, Cal., under the style Overland Salinas Co. They are Overland agents for Northern Monterey County.

T. A. Work and A. W. Furlong have purchased the Pacific Grove Garage and the Studebaker Garage in Pacific Grove, Cal. They will conduct both establishments.

Interstate Vulcanizing Co., Vancouver, has been incorporated for $6,000 by D. F. Smith and Austin B. McCoy to deal in tires and accessories.

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Roseburg Garage, Roseburg, Ore., will be improved and extended, and a vulcanizing plant will be installed.

Pratt & Cunningham, Seattle, has been organized to take over the Kelly-Springfield Tire Sales Co., at 1529 Eleventh Avenue.

Coos Bay Vulcanizing Co., Marshfield, Ore., will move the new quarters at Anderson Street and Broadway.

B. L. Adair, Princeton, Idaho, has purchased a half interest in the Velie agency at Spokane.

New Garages

Ruthven & Cerrano
230 Pearl Street, Monterey, Cal.
Grant D. Miller..Twenty-fourth Avenue and East Fourteenth Street, Oakland
Service Garage.....San Juan, Cal.
H. S. Spedden.....Chewelah, Wash.
Charles Bearnold.....Seattle
Charles Jasper.....Spokane
Overland-Pacific Co.....Portland
Willard Service Station.....Spokane
Martin Peasley.....Tyler, Wash.

MOUNTAIN

Ogden Motor Car Co., Ogden, Utah, has been reorganized, and has taken over the J. G. Read & Bros. business and also the David O. McKay business. The new company will do business under the style Ogden Motor Car Co.

SOUTH

Holcomb-Williams-Blitch Motor Co., Savannah, has been organized with a capital of $20,000.

Cordele Motor Car Co., Cordele, Ga., has moved to new quarters.

Shaw Auto Co., Quincy, Fla., has been organized with a capital of $25,000. C. E. Shaw is president and W. B. Malone secretary and treasurer.

Hastings Auto Supply Co., Hastings, Fla., has been incorporated for $25,000. F. F. Flake is president.

Alabama-Indiana Motor Truck Co., Birmingham, has been incorporated for $2,500 with R. W. Mabry as president.

New Garages

E. Branan Mason.....Lavonia, Ga.
Boardman, Vogel & McRae
St. Petersburg, Fla.
Tennessee Valley Auto Co.....Florence, Ala.

EAST

J. Ward Williams, Inc., has been organized in Buffalo to handle Stanley Steam cars, and has leased salesrooms, a garage and service station at 2359 Main Street.

SOUTHWEST

Jesse Penick, McAlester, Okla., has bought the W. S. Denty garage.

Lahr Auto Co., Tulsa, Okla., has moved into a new building at 312 East First Street.

Universal Motor Co., Tulsa, Okla., has moved into a new building on Main and Cameron.

Alton Motor Corp., Tulsa, Okla., has moved into new headquarters at 310 East Third Street.

Hesse Motor Car Co., Leavenworth, Kan., is building an addition of 40,000 sq. ft.

Ralph Clar, Garden City, Kan., has bought the interest of John Miller in the Warden-Miller garage.

Thorp & Campbell, Lucas, Kan., have bought the V. W. Maupin garage.

Lamb Auto Sales Co., Sylvan Grove, Kan., has been reorganized and will hereafter be styled Midwest Motor Co. It has moved into new quarters on Seventh Street.

J. C. Harding Co., Junction City, Kan., has opened a repair shop.

Scott & Delaney, Lone Oak, Tex., have bought the Joseph Payne garage.

C. M. McCombs, Enid, Okla., has bought the Delmar garage.

Pounder & Waller, Henryetta, Okla., have bought the Bosarth & Taylor garage.

W. J. Quillin, Edmond, Okla., has bought the Edmond garage.

Brown & Hockard, Drumright, Okla., have succeeded H. A. Hockard in the ownership of the local garage.

Overland Garage, Kingfisher, Okla., is remodeling the Banker Building.

Gates Tire Service, Tulsa, Okla., has moved into new quarters at Second and Detroit Streets, where they will do vulcanizing.

Mrs. H. K. Wind & Co., Miami, Okla., has bought the Rohrbough & DeChenne garage.

W. A. Schneider, Sikeston, Mo., has opened a vulcanizing shop.

Hudson-Brace Motor Co., Kansas City, has moved to Twenty-seventh Street and Grand Avenue. The new building has 44,000 sq. ft. of floor space. The first story is used for offices, display rooms, and transient service station; the second story for a repair department and the third for storage.

J. M. Kelly, New Hampton, Mo., has sold the Jefferson Highway Garage to Fred Peery, King City.

C. A. Sampson, Malta Bend, Mo., has bought the garage business of Sampson Bros.

Crewson & Petty, Versailles, Mo., have moved to new quarters in the public square.

J. H. Deeter, Rich Hill, Mo., has traded the White Way Garage to Roy Beshore for his 80-acre farm.

Peacher & Keune, Laclede, Mo., have bought the garage of W. H. Bassett.

Clyde Thoren, Goff, Kan., has bought the Clifford Jerome garage.

H. W. McCarty, Hutchinson, Kan., has opened a repair shop.

J. Humbarger, Caldwell, Kan., has opened a repair shop.

Oskaloosa Motor Co., Oskaloosa, Kan., is enlarging its quarters.

Horn Bros., Conway Springs, Kan., have sold their garage to Hobble & Edgington.

J. G. Ault, Liberal, Kan., has bought a half interest in the Mann Motor Sales Co.

Roy Knight, Stockton, Kan., has bought the garage and repair shop of G. A. Probasco.

J. W. Berry, Burrton, Kan., has bought the garage of A. A. Pilkington.

C. M. Phinney, Russell, Kan., is remodeling his salesrooms.

Lee Miller and Tilton & Tilton, Grenola, Kan., have bought the garage of Cochran & Sawyer. Miller will be in charge, and Tilton & Tilton will continue their implement business at Moline.

Independent Motor Co., Manhattan, Kan., is building a show room adjoining its present building.

Wall Automobile Co., Oklahoma City, has been incorporated for $10,000 by D. D. Wall, D. A. McDougal and A. Schubert.

May Watkins Motor Co., Ardmore, Okla., has been incorporated for $12,000 by Coy Watkins, John W. May and Don Harris.

Well Automobile Co., Oklahoma City, has been incorporated with a capital of $10,000 by D. D. Well, D. A. McDougal and A. M. Schubert.

Kansas Truck & Tractor Co., Wichita, Kan., has been formed with $100,000 capital by C. E. Nichols, Roy L. Williams and Geo. W. Cox.

E. M. Rowe Co., Little Rock, has been incorporated with a capital stock of $50,000.

The Piper Garage, King City, Mo., is being remodeled.

L. C. Fleming, Fulton, Mo., has bought the Tire Shop from W. C. Backer.

Hunter & Karr, Clarksburg, Mo., are enlarging their garage.

Arizona Steam Motors Co., Phoenix, has been incorporated to distribute Stanley Steam cars and has opened salesrooms and a service station.

New Garages

Republic Garage.....Springfield, Mo.
Oak Grove Garage & Mechanics' Supply Co.
Oak Grove, Kan.
Stillwell-Shock.....Warrensburg, Mo.
W. H. Curtis.....Clinton, Mo.
Herbert Stockman.....Modena, Mo.
C. C. Stribling.....Clarence, Mo.
E. F. Thomas.....Pleasant Hill, Mo.
A. E. Kamper.....Gerald, Mo.
Paul Russell.....Paola, Kan.
Geo. Saum.....Natoma, Kan.
Ed Light.....Yates Center, Kan.
Frank Holland.....Chapman, Kan.
Andrew Pierce.....Neodesha, Kan.
John Carr.....Mound City, Kan.
A. J. Missimer.....Russell, Kan.
W. H. Tilley.....Winifred, Kan.
Vincent & Bruner.....Dorns, Kan.
Songer & Rowe.....Severy, Kan.
Argentine Garage Co.....Argentine, Kan.
N. P. Leonard.....Hiawatha, Kan.
Clay Henderson.....Imboden, Ark.
Grover Shideler.....Stillwater, Okla.
G. W. Crabtree.....Ardmore, Okla.
Griffith & Tartes.....Miami, Okla.
C. M. Gibson.....Miami, Okla.
C. E. M. Griffith.....Tulsa, Okla.
Russell & Sparks.....Elmore City, Okla.
Seepitt Motor Sales Co Tulsa, Okla.
Francis Sleeper.....Tulsa, Okla.

NORTHWEST

Esslinger Auto Co., Sheffield, Iowa, has bought the R. F. Schafer Implement Co., Hampton, Iowa.

Loetscher, Semmert and Loetscher, Dubuque, have sold the United Garage to Clem White.

Boyenga Bros., Grundy Center, Iowa, have bought the C. F. Rader garage.

A. E. Baum & Co., Waterloo, Iowa, have opened a salesroom at 1027 Sycamore Street and will have the Lexington agency.

New Hampton Implement Co., New Hampton, Iowa, has bought the Chickasaw Motor Co.

Henry Thompson, Davenport, Iowa, has bought the interest of Dalton H. Duncan in the Swanson Motor Co., 325 Harrison Street.

I. P. West, Mt. Vernon, Iowa, dealer in Buicks and Chevrolets, has moved to larger quarters.

Garner Auto Co., Garner, Iowa, has taken the Cadillac agency.

E. B. Shelley, Guthrie Center, Iowa, has purchased the Wylund Guthrie Center Tire & Repair Co.

The International Rubber Co. has opened a service station at Cedar Rapids.

The Standard Oil Co. will open a filling station at Jefferson, Iowa.

New Garages

Joe Sikkema (addition).....Hampton, Iowa
Chris Arndt.....Sac City, Iowa
Metz Auto Co.....Metz, Iowa
F. C. Hector.....Walnut, Iowa
Inwood Auto Co.....Inwood, Iowa
Henry Rump.....Ft. Madison, Iowa
J. E. Harden (addition)....Montezuma, Iowa
A. M. Kindwall.....Alta, Iowa
Biderman Brothers.....Mt. Vernon, Iowa
W. C. Beisner.....Nebron, Neb.
E. L. Graves.....Dubola, Neb.

Philadelphia Storage Battery Co., Philadelphia, has appointed the following representatives: People's Auto & Supply Co., 64 N. Front Street, New Bern, N. C.; Smithfield Garage & Machine Works, Smithfield, N. C.; Vickery Bros., Main and Jackson Streets, Barnwell, N. C.; Gate City Motor Co., Greensboro, N. C.; Darby's Garage, Monroe, Ga.; Charles D. Zimmerman, Watertown, N. Y.; C. G. Reign, Penn's Grove, N. J.

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Use of Trade-Mark Without Maker's Authority Illegal, Says Oregon Court

THAT it is unfair practice for a dealer to use the Ford trade-mark and to advertise himself as a Ford dealer when in fact he is not a Ford agent has recently been decided in an Oregon case.

The Ford company brought suit to restrain a dealer who was engaged in the general automobile business from engaging in unfair practice, by which it claimed its rights were violated and the public was deceived. Although the dealer had never been authorized, as agent of the company, or otherwise, to sell its products, he maintained the word "Ford" in a conspicuous place on his building; used a poster in the shape of a winged-pyramid with the word Ford on it and his own name at the bottom, together with the words "Ford agents," in imitation of the company's trade-mark, and further represented himself as a Ford agent to prospective customers by putting an ad in the classified telephone directory describing himself as proprietor of a "Ford auto agency." It further appeared that the dealer was in the habit of cutting prices.

The Court held that just because the dealer was selling Ford cars it could not be said that he was not guilty of unfair competition, because if there were no advantage to him and no corresponding disadvantage to the company he would not wrongfully hold himself out to be a Ford agent.

Explaining this the Court said: "The purchase of an automobile is not like the purchase of a sack of potatoes. An automobile is a complex mechanism, designed to be used for an indefinite length of time. Parts wear out and must be replaced. The ordinary purchaser realizes that he is incompetent to judge whether in all respects an offered car is up to the manufacturer's advertised standard. It is a consideration of some importance to him to be able to deal with the maker or its recognized agent. He desires the assurance that the article he purchases is standard; that it has the maker's guaranty; that he will be able to procure parts and accessories as he may need them; and, of course, that no question will be raised touching his title.

"Obviously the dealer would not give a prospective purchaser all of these assurances. If he is rightfully in possession of new Fords, he may, as a matter of course, sell them where and to whom he pleases, and as an inducement he may cut the company's price, but he cannot, by pretending to be its agent, thus do it the double wrong of pirating upon its patronage and also injuring it in the estimation of the public, by making it appear they are actually selling its cars at different prices, while professing to maintain the same price for all. Such deceptive practices are of the very essence of unfair competition.

"Admittedly he resorted to these practices for the purpose of deceiving, there can be no question that the means employed were well adopted to that purpose. It may be that some people, with knowledge of the actual conditions, would purchase cars from the dealers for $25 below the current price, but upon the other hand, it may very well be assumed that others would prefer to pay the additional $25 for the assurances and security supposed to attend purchases through a regular agency, and in its enjoyment of the trade which would naturally come to it from this latter class the company is entitled to protection against the dealer's unfair deceptive practices."

It was decided, therefore, that the dealer had used the company's trademark falsely, and, with the intent to deceive, had advertised that he was a "Ford agent" and that he had a "Ford auto agency."

Did He Intend to Defraud?

I was lately told by a dealer that a short time before a man had applied for a job and shortly after he was employed got the dealer to cash a check for him. The check came back from the bank marked "No account." The dealer, of course, wanted to know what he could do under the circumstances. I advised him to make a criminal charge against his former employee because the latter had drawn a check on a bank where he had no account.

In the usual case where a check comes back marked "Not sufficient funds," a dealer has the same right to have the drawer arrested if he can show that the man who drew the check did it with intent to defraud and actually knew that he had not enough funds in the bank to cover the check.

This is a very difficult thing to prove, however, so in the great majority of cases a dealer must content himself with a civil action to get back the amount of the check. Where a check is returned marked "No account," the intent to defraud is much more easily proved, and a dealer in that case is justified in making immediate complaint to the district attorney or other proper officer in his locality.

Express as Slow as Freight

COLUMBUS, Dec. 14—Indicating the strain put upon shipping by war conditions, it is stated here that where the American Express Co. had eight wagons running in Columbus a few months ago it now has 36 of its own and eight that are rented. The other express companies are said to have expanded to a similar extent. A solid carload a day of express, in addition to loose shipments, is received from Cleveland. Dealers state that express now takes as long as freight.

Depreciation of Ford in Four Years

Editor Motor World: We saw a scale in Motor World showing the depreciation in four years on cars larger than a Ford. Would like to know how much a Ford depreciates in that length of time.

Thanking you in advance, I remain.—James C. Jensen, Grand Rapids.

By adhering rigidly to the black line in the used-car chart worked out in Motor World a car, at the end of its fourth year, would be worth about 10 per cent.

We all know, however, that a car in exceptionally good condition is always worth more than the average. We also know, as stated in the used-car list printed with the chart, that certain cars sell higher than others because of certain conditions, and the Ford is one of these.

For that reason our judgment would be worth about 15 per cent of its original price. A car to be four years old to-day is a car that was brought out in the summer of 1913 and this, we presume, is a 1914 Ford.

That touring car sold for $550 and 15 per cent would make its value about $75. These cars, in the Used Car Market Report issued by the Chicago Automobile Trade Association, are appraised at an average of $144, and the book shows that they sell for an average of $183.

These figures are considerably above anything shown on the chart, because there probably is no car that brings as high a percentage of its list price as does the Ford.

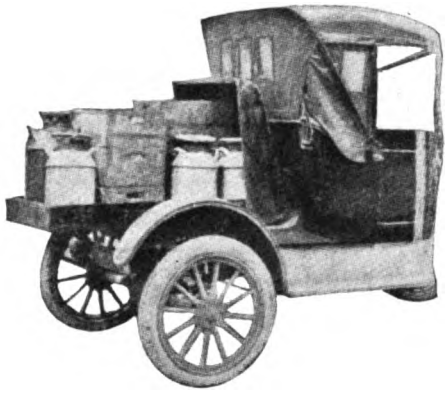
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Accessories



VULCANIZIT

This is a paste-like material for permanently repairing tubes or casings. It requires no patches or heat and needs simply to be squeezed into a cut in a casing or over that part of a tube to be repaired. It will repair punctures, tears, rips and blow-out holes and can be used for repairing tubes that have been torn apart. It is sold in 3 oz. tubes at $1. One tube will mend fifty or more punctures.—Para Rubber Products Co., 27 William Street, New York.



EVER READY TRUCK ATTACHMENT

This attachment is designed to transform a Ford runabout into a 1000-lb. truck without changing the appearance of the car when not in use as a truck. Inside dimensions are 27 in. wide, the length being adjustable from 27 in. to 5 ft. The end gage raises and lowers at will. The attachment is built of heavy black iron and has a shipping weight of less than 150 lb. No bolts or screws are necessary for attachment, which can be made in about 1 hour.—Ever Ready Truck Co., Chicago.

ROLLER BEARING UNIQUE

The National Bearings Service Co., Philadelphia, is putting out a roller bearing for Ford front wheel spindles. This bearing is made by the Wright Roller Bearing Co., and is identical in design with the bearings now used on many commercial and passenger cars.

The bearing itself is unique in that it has no cage or retaining mechanism to hold the rolls in the raceways and is thereby enabled to use more rolls. The gain in the number of rolls is approximately 50 per cent over the average type.

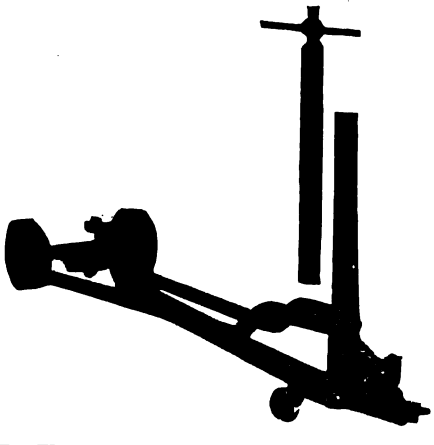


E. & J. TRUCK LAMPS

Electric searchlight No. 8660 is designed to meet requirements of Government service and is adaptable to Government types of truck without change of construction. Finish is black and nickel. A combination oil and electric side and tail lamp is designed for the same purpose. The standard finish is all black. Prices, searchlight $19; oil and electric lamp $4.—Edmunds & Jones Corp., Detroit.

RED DEVIL DOLLY JACK

This is a substantial, crucible steel garage jack for raising cars and moving them from place to place. The jack will operate under any height of axle or differential, the car being raised with one movement of a long handle, which gives great leverage. The jack may also be used where a car is equipped with a rear bumper, or, where rear tires extend a considerable distance. Wheels are equipped with roller bearings.—G. A. Ashton Co., 1547 University Avenue, St. Paul.



A C CARBON PROOF PLUG

This new spark plug has been designed to overcome carbonizing trouble. It is made in all standard sizes for Ford, Overland, Studebaker, etc. The construction of the porcelain is unusual in that there are a number of saw-tooth ribs which attain a sufficiently high degree of heat to burn away any carbon. — Champion Ignition Co., Flint, Mich.



PERMALIFE BATTERY SYSTEM

The Permalife Storage Battery Co., Poughkeepsie, N. Y., has completed the reorganization of its business, and the roster of its officers includes several names well known to the automobile industry. W. H. Lyall, who, under the style of W. H. Lyall & Co., had the agency for the Hudson car at Poughkeepsie, is president. Herman Schatz of the Federal Bearings Co., is vice-president, and Silas Lane of Lane Bros., Poughkeepsie, manufacturers of hardware and automobile supplies, is secretary.

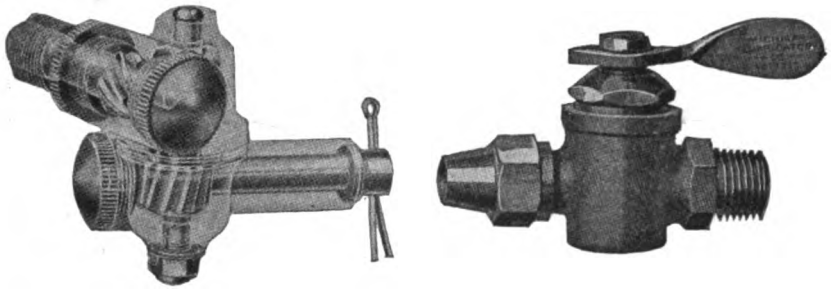
This concern represents the consolidation of the interests of the Permalife Corp. of Indianapolis with the Wright Storage Battery Co. of Poughkeepsie, N. Y. The latter concern had been making the battery invented by Frederick Wright, an electro-chemical engineer long connected with the industry.

The battery being marketed is the Wright invention, and it is claimed by the Permalife corporation to be proof against sulphation, and therefore against short-circuiting and buckling of the plates.

A feature in its manufacture is the patented method of electrically sifting the wooden separators in a special acid solution, which boils the wood and causes the expulsion of all foreign matter that might be a conductor of electricity, thereby diminishing the battery's efficiency. The wood is thus thoroughly neutralized with more certainty of insulation.

The Permalife selling plan is unique. Each distributor is listed as a service station. Each buyer has the privilege of exchanging his battery at any service station at any time upon the payment of $1.25, and receiving in return and without delay a new Permalife in perfect condition. This fee is divided between the service station and the company on an equitable basis, and the company makes good on all the exchanges. The only condition attached is that the owner must make an exchange at least once every 3 months, as that period is considered to be the time limit without attention.

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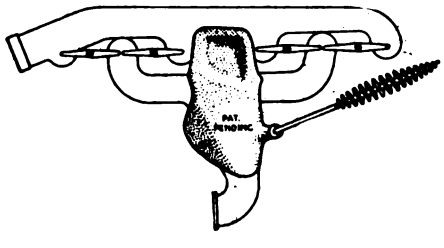


F. W. S. IMPROVED SWIVEL JOINT

This new speedometer swivel joint is driven by worm gears throughout. Each gear and shaft is cut from one piece and each gear has a projection which fits into a bearing in the grease cup, thus insuring alignment regardless of wear. Unusually large bearing surfaces are provided. The joint may be changed from right hand drive to left hand drive by merely reversing the shaft connection and the grease cup connection and fore end. All parts are removable and interchangeable, allowing easy and inexpensive replacement of worn parts. The entire swivel may be quickly taken apart and reassembled for cleaning. —F. W. Stewart, 1402 Michigan Avenue, Chicago.

KANT-LEAK SHUT-OFFS

The features of these shut-off cocks, which are made in all the various sizes and styles, are the key and stem construction. The key is ground to a heat and held by a spring, this spring pressing upward and against packing that is placed around the valve stem. Thus at all times both key and packing are under compression that tends to prevent leakage. In addition the taper plug is turned to a glass finish. The list price of Model 170 C.I., ⅛ in., is $2.30.—Michigan Lubricator Co., Detroit.

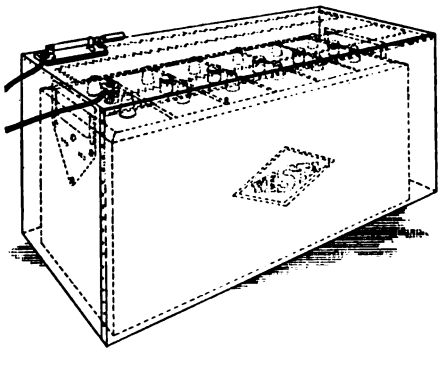


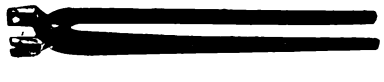
HOT-O-SPOT STARTER

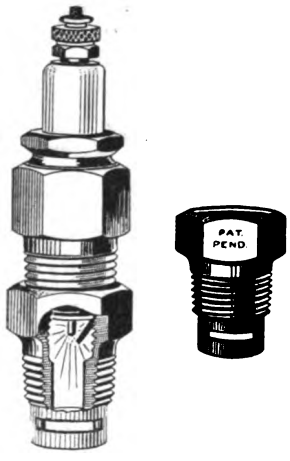
This device clamps over the exhaust manifold of the Ford and maintains a hot spot in the center of the intake manifold to facilitate starting and assist in the vaporization of low grade fuels. It is not permanently fastened in place, except by a clamping device operated by an insulated handle. If necessary the device may be heated from some external source and clamped in place so as to facilitate starting a cold engine. The device is insulated so that it retains its heat for a considerable period. Price $2.50.—Hot-O-Spot Starter Co., Columbus, Ohio.

VESTA BATTERY EQUIPMENT

Battery tops may be unsealed and removed readily through the use of a special electrical heater provided for that purpose, without the necessity of removing the electrolyte from the cells. It comprises an asbestos board box, or oven, in the top of which are four heating coils of No. 18 temperature resistance wire. This box is placed over the battery after the connectors have been removed, and the current turned on. After about 10 min. the heat from the coils so softens the sealing compound that the plates may be lifted from place. The cost of operation is about 10 cents per hour, as the heater consumes 10 amperes on a 110 volt line. The price is $15. In addition, terminal tongs are provided for removing taper terminals that have become seated or corroded in place. One jaw of the tongs grasps the post at the base of terminal, the other forcing it from place without injury. These cost $1.65 per pair.—Vesta Accumulator Co., Chicago.





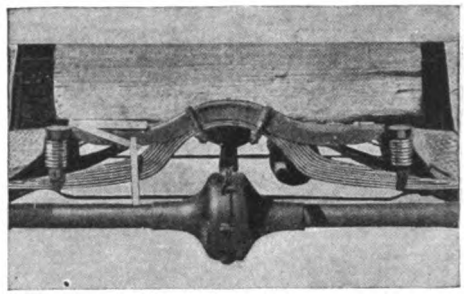


NOYL SPARK PLUG ATTACHMENT

This device is in the form of a socket which is screwed into the spark plug opening and into which the spark plug is screwed in turn. At the lower end of the device there are two openings which permit the gas to enter and the ignited mixture to rush out and ignite the full charge in the cylinder. The openings prevent any direct splashing of oil on the spark plug terminal. It is stated it can be used in badly scored cylinders which pump oil and that it effectually prevents short circuiting the plugs. Price 50 cents.—American Automobile Accessories Co., Cincinnati.

STINSON WINDSHIELD ATTACHMENT

This device is to be clamped to the upper glass of the windshield of the 1915, 1916 and 1917 Ford models after it has been lowered, converting the windshield into a ventilating type. The extension deflects the air to the feet, eliminating heat from the engine. The attachment remains fastened to the upper glass when the windshield is up. Price $2.—E. B. Stinson, Jr., & Co., Louisville, Ky.

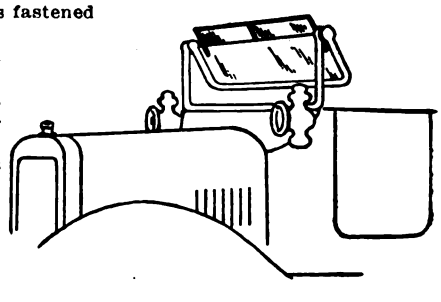


FORD STRENGTHENING DEVICES

Two devices for the Ford car include a spring which fastens to the channel iron and rides on the rear springs, releaving them, making it impossible to bump the housing and break the axle. The device does not operate unless the car is overloaded, but always acts to stop excessive tilting. The other device is a thrust rod which clips on the stepiron near the chassis and fastens to the running board thrust rod to add strength and overcome sagging of the running board. Prices, spring $8 a pair in weights up to 800 lb. for the passenger car and up to 2000 lb. for the commercial car. Thrust rods $2 a set.—Ford Relief Spring & Frame Supporter Co., 70 East Forty-second Street, New York.

OXIGENE

Oxigene is a liquid product which is mixed with the gasoline in the tank. It has been developed with the thought that the oxygen content of the air as it enters the carbureter is not sufficient for complete combustion. Oxigene mixes completely with the gasoline and after it has entered the cylinders in combination with the gasoline and air mixture it liberates oxygen in the correct proportions to promote perfect combustion. It is stated that the product eliminates carbon deposit. The manufacturers guarantee the product to increase mileage 25 per cent on a money-back proposition. Oxigene is sold in 5 oz. bottles with graduated labels at $1 each net. It is also put up in quart cans at $5 each and in 1 gal. cans at $17.50 each.—Stewart & Co., 200 Broadway, New York.



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War Hasn't Taken Mechanics Yet, But It Will

Dealers and Garagemen Say Supply Is Plentiful in Some Places and Scarce in Others—Change Is Imminent

The Labor Situation at a Glance

1—There is a shortage of certain classes of labor, especially skilled labor, but this is due as much to normal trade conditions as to any other reason.

2—Business is somewhat subnormal and if it were at par the labor shortage would be very acute.

3—The demands of the war have not yet made great inroads into the organizations of dealers and garagemen.

4—Dealers and garagemen feel that the next draft will hit them very hard so far as labor is concerned.

5—Little has been done in securing substitutes for skilled workers, other than to train green men for these jobs. The employment of women has not yet been seriously taken up.

6—Salesmen and office workers, as well as mechanics, are difficult to get in some sections.

IN the smaller cities the shortage is more keenly felt than it is in the larger centers. In Chicago there is an abundance of help, as indicated by the trade's employment bureaus, and various other towns report a similar condition. The shortage in New York and the East is about on a par with that in other cities; it has not yet been felt so much as it is believed it will be later on.

During the National Guard enlistment in New York some time ago the automobile trade furnished a certain quota of men and skilled enlistments have been fairly plentiful throughout the East. The spirit of the war grew faster nearer the seaboard than it did inland and possibly more men have gone from Eastern sections than from any other.

The Dec. 15 enlistment rule, which provided that men could not select their own branch of the service after that date, accelerated enlistments throughout the country, and the call of the service began to make its first real demand on the trade.

Older salesmen are working harder since younger men have gone; men over 31 and under 21 are being trained for skilled work and dealers are endeavoring in various ways to meet the demands that the war necessitates. The plan of bidding for labor seems to be followed more generally than any other and it does seem that some other solution should be sought. Endeavoring to get another man's employees by offering higher wages serves only to send the wage scale up and causes labor to shift around to an inefficient extent. Conditions as they exist in a number of principal centers are shown in the following dispatches from Motor World correspondents:

Plenty of Labor in Chicago's Row

CHICAGO—T. D. Beard, assistant secretary of the Chicago Automobile Trade Association, says that the association employment department has more salesmen, clerks, skilled mechanics and unskilled labor registered than there is a demand for. Right at the present time there is a shortage of body builders and wood workers, but this is a condition which always exists at this time of the year, so that this does not signify any real shortage.

The Metal Trade Association reports practically the same as the Chicago Automobile Trade Association that there is plenty of all classes of labor with reference to the automobile industry. The general opinion seems to prevail that there is not as great a number of skilled mechanics at the present time, yet business has fallen off in a greater proportion than have the skilled mechanics and therefore they have not been affected to any great extent by loss of man power.

Some seem to think that conditions will be a great deal worse after the next draft than they are at present, or if business were to resume to normal proportions, there would probably be a real shortage of skilled labor, and the shops would have considerable more work than they would be able to handle.

Ten Per Cent Gone from Younger Workmen

KANSAS CITY—Motor car dealers of Kansas City have lost fully ten per cent of their younger salesmen to aviation, artillery or some such department of the war service. The older salesmen are working harder and developing more business proportionately than before. So far the situation is not serious enough to cause alarm or demand special remedy. Sometimes mechanics are brought to the sales force—though it is possible that salesmen may sometimes be shifted back to their former specialties as mechanics—so grave is the shortage of the specialty men, such as testers and motor finishers.

The shortage of salesmen has not seriously handicapped the efforts of dealers, though some dealers have had to devote more of their own time to saleswork, neglecting their broader business-developing activities.

The supply of clerical help in Kansas City seems quite sufficient—but not of the desired grade. Office managers are forced to hire more women and so forego the employment of boys who may reach executive or sales positions. Office organizations almost entirely of women and headed by women are even now seen, and are increasing in number. As a rule, the clerical forces have lost one or two at a time, and the places could be filled with comparatively little inconvenience. The restlessness of clerical help, seeking new jobs, is an aggravating condition, but has not caused any marked effect on business transactions.

Skilled mechanics are growing scarcer, of the kind that can be left with any sort of a job. The only means to meet this situation seems to be raising the wages. In some instances service is suffering.

There is an abundance of unskilled labor.

Some supply houses in Kansas City have been seriously handicapped by the loss of salesmen. In more than one instance, the dealer is merely letting that feature of the

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business slide that the salesman had charge of, or is doing the sales work himself. There has probably been a loss of ten per cent in such salesmen—and the loss in business runs far higher than in the case of the decrease in automobile salesmen.

The loss of young men in supply houses is being met largely by the employment of more women, and older women. Supply houses are suffering severely because of the shortage in the supply of specialty mechanics; their service is being reduced, and the volume of sales of these items that the specialty men handle is reduced.

Garagemen and repairmen do not generally complain of shortage of any class of help, except that they cannot get all the best grade of mechanics they need.

Short Skilled Mechanics

FARGO, N. D.—There is a shortage of skilled mechanics in this territory but there is no shortage of clerks, salesmen, or unskilled labor. Aviation, motor truck squadrons, field artillery have taken most of the mechanics but the shortage has not had any serious effect on business except in a few instances, to crowd repair shops. Dealers have so far made no concerted effort to remedy the situation, which, several have stated, will not be a serious problem in the Northwest until next spring. Nowhere is there any evidence of women taking the place of mechanics, although all of the garages report women clerks.

Hard to Get Repairmen

AUSTIN, TEX.—Although no serious labor shortage has as yet been felt by the automobile trade, there has been a considerable decrease in the number of skilled employees, according to reports of Texas dealers. It is stated that the difficulty of filling the places of salesmen who have entered military service is not as great as that of obtaining trained mechanics for the repairshops. This is due to the fact that when it comes to salesmanship of motor cars, this character of employees may be had from the ranks of other business and industries. Also men above the army draft age are often found to be fully as capable and successful in the matter of salesmanship as the younger men. This same condition applies largely also to clerks.

The demand for skilled mechanics on the part of the Government has depleted to some extent the automobile repair shops throughout the State. Large numbers of men are employed in this character of work in the Government motor truck and automobile shops at San Antonio. So far as the unskilled labor is concerned there is no shortage in this supply up to this time. In San Antonio, Austin, El Paso and all of the towns situated immediately upon the border, Mexicans are employed in large numbers, not only in the departments of the motor car industry where comparatively little skill is required, but in the mechanical ends as well.

War Contracts Take Men

MILWAUKEE—A shortage of competent mechanical help is reported by garages, repair shops and service stations, but the condition is probably less serious in this field than it is among the large machine shops of the Milwaukee district, which need hundreds of additional men for the execution of Government contracts of all kinds. During the last four or five months the forces of skilled labor in garages have suffered heavily by reason of the inducements offered by the big machine shops, and also through the selective draft. At this time it practically is impossible to procure additional skilled mechanical help of any kind. The only real movement of skilled mechanics is brought about by the attractions of higher wages offered by those who need men so badly that they outbid other shops.

Under existing conditions in the retail motor car trade, only a few shops are looking for men. The greatest need arises from the fact that dealers are making an extraordinary effort to dispose of used car stocks, and to obtain the best possible prices, considerable repair and overhaul work is being done on old cars. This has created a momentary shortage of mechanics. To a large degree, however, dealers are able to get along fairly well with the forces they have. Ford dealers, perhaps, are the heaviest bidders for additional labor.

A considerable number of salesmen have accepted positions in other lines and others have entered the military service, but on the whole dealers and distributers report that they are able to fill nearly all of their needs with the supply on hand. The same is true of the office force.

Conditions surrounding unskilled labor in every line of business are the most unfavorable of all. Men are obtainable, but only at wages which two or three years ago were equal to those paid to skilled workmen.

See It Coming

INDIANAPOLIS—No serious labor shortage as yet has been reported by the automobile industry in this city, although manufacturers are predicting that as soon as war orders that have been placed with local companies are started to be filled that a shortage of skilled labor will be experienced. Motor car dealers report that there is not a shortage of salesmen and that men for clerical work are plentiful. There are enough skilled mechanics in the city at this time to meet the present need of the industry and factories and dealers are experiencing little difficulty in obtaining unskilled labor.

It is estimated that 10,000 negroes have come to Indianapolis during the last six months. These men are helping to fill the heavy demand for unskilled labor. Negroes also are taking the place of white men in garages and service stations, many of these men becoming excellent mechanics. Representatives of all branches of the industry report that the labor situation is not acute.

Delaware About Normal

WILMINGTON, DEL. — Labor conditions in the motor industry here are reported by the men in the business to be about normal. Three months ago there was a scarcity in nearly all branches, but now each of the large concerns, as far as developed in a canvass of the most important plants, are sufficiently manned to take care of the business.

This applies to dealers, supply houses, garagemen and repairmen. Three months ago, due to the really abnormal demand for new cars, all of the available help was utilized and there was such a scarcity in the repair departments that each establishment took care only of the cars in which it had a direct or indirect interest, while now most of them are open for any repair work.

As a matter of fact, there is plenty of work, and there is also sufficient help. Many who were used in the selling end, getting new cars ready, etc., are now employed on repairs. Due to war conditions and the approach of winter, there has been a let-up in new car sales trade—though it is about normal for the time of year—which has released men for other branches of the business. As a matter of fact, the sales force has never experienced a scarcity of men, there was not a serious shortage in the clerical department, and now the repair force is fully manned. This includes unskilled help, of which there is sufficient.

The scarcity of help during the summer was inconvenient, but according to the dealers, it was not bad enough to result in serious losses.

Work Is Piling Up

YORK, PA.—Despite the fact that the labor conditions have seriously affected the automobile business in this city, it is the opinion of local dealers, garagemen and repairmen that the situation here has not reached the acute stage as in many of the larger cities throughout the country. The inducements being offered to workmen in many of the large munition factories, plants engaged on Government work, as well as the automobile business elsewhere, have attracted a large percentage of clerks, skilled mechanics and unskilled labor. In order to overcome this loss of man power, gangs of new men, as a rule inexperienced, are being employed.

As a result the business has suffered seriously, there being a congestion of work in practically every garage and repairshop in the city. One redeeming feature is the fact that with the approach of the winter season, automobile touring will be reduced to a minimum and proprietors feel that during the winter months they will be able to clean up all business and start the spring season with a clean slate and a corps of more experienced workmen. One garageman, in emphasizing the condition, stated that he has made an effort to adapt himself to the situation as he has found that the only thing to do in order to overcome the labor shortage was to have in training a number of inexperienced men so that they will be fitted to take the place of the older men when they leave. Within the past year, he stated, he has trained two gangs of "green" workmen so as to facilitate the operations in his large garage and repair shop.

It appears to be the general opinion that conditions will not improve until the termination of the war and at least not until the general labor situation makes a change in this country. The situation here is probably somewhat different than in many of the larger cities for the reason that in the majority of cases the motor car dealer also engages in the sale of automobile supplies as well as the garage and repair business. This has resulted in the general shortage of clerks, skilled mechanics and unskilled laborers alike. The shortage of salesmen is not so serious. Only a few men have been lost owing to the selective draft law, while the number of enlistments here has also been comparatively small.

Denver's Case Is Different

DENVER—The labor situation in the Rocky Mountain territory has not yet become serious enough to cripple the motor business, according to leading men in the main branches of the industry here. Conditions somewhat critical have arisen recently for short periods, but they have been overcome with reasonable promptness and their effect has not been permanent. The tradesmen regard these incidents of temporary shortage as something to be expected, but not as anything alarming.

Skilled mechanics are in more demand here than any other class of motor indus-

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try labor. This shortage is attributed in large part to the rapid growth of the industry in this section during the last two years. War measures, of course, have taken a large number of mechanics, both through the big demand in Eastern manufacturing centers and still more through the Government's call for this class of men for military service. But the heavy increase in the motor repair business began calling for mechanics long before this emergency call. Besides the Eastern demand has been offset considerably by the fact that many men with families and homes here preferred to stay, especially when wages were increased, by the tendency of others to "go West," and also by the strong pull that brings hundreds out here because some member of the family needs this climate in a hard battle against bad health.

In addition to the climatic attraction, which also holds many healthy people because it offers them particular enjoyment, two other factors tend to make labor conditions here unusual. These are the exceptional fitness of this territory as a touring mecca, and the absolute prohibition of motoring in the higher parts of the mountains in winter. As a result, mechanics often get summer work only in these mountain towns, and then seek winter work in the larger centers and in towns not liable to be snowbound three to six months. Even shops in good-sized towns in the plains country often have to lay off part of their help in winter because of the slack business. Many enterprising repairmen work against this wavering condition as far as possible by adopting Motor World's plan of offering special inducements to customers to have their cars overhauled during winter months. Special encouragement of winter motoring also helps. But there is still a big difference because of the tremendous amount of business from tourist travel in the summer. So, at the present season of the year, the shortage of mechanics is bound to be far less marked than it is in parts of the country more uniform as to lay of land, more thickly settled in general and with more large cities, more given to manufacturing and less prominent for touring.

Motor car dealers, supply houses and garagemen have thus far had little trouble in getting plenty of salesmen, clerks and unskilled labor. In some cases, men have been promoted or transferred to fill vacancies caused by military demands, and women have been employed more extensively during the last few months than ever before. But no drastic steps have yet been found necessary to prevent grave injury to any branch of the motor business here. Nor do conditions point to any emergency stage soon. The main complaint from car dealers is about trouble in getting enough cars to keep their sales force tuned up to the right pitch.

Half Have Gone to War

LOS ANGELES—The labor situation here is acute only as relating to skilled mechanics, fully 50 per cent of these having joined the colors. Owing to a large number of itinerant clerks, salesmen and office help that come here each winter, no scarcity in these lines exists, but first class salesmen are in demand and command higher salaries than ever.

The loss in man power is affecting the service departments of motor car dealers, garagemen and repairmen. Skilled mechanics who can command 56 cents an hour are not to be had. Work is accumulating and delays result. The only apparent remedy is breaking in new hands. Automobile mechanics' training school graduates are not accepted as skilled mechanics unless they have served an apprenticeship. Repair work of all kinds has slowed up as the result of conditions, and the public is being made to stand for it rather than risk inexperienced help. Less than a dozen women are employed in the motor car shops in this city. Young boys are poor substitutes.

Using Some Women

BUFFALO—If the automobile business in Buffalo at this time of the year was what it usually is in the summer and spring the dealers of this city would be hard pressed for salesmen and clerks and labor, both skilled and unskilled. As it is the dealers here find it a difficult matter to find men enough and some have already placed women in positions formerly held by men.

"There would be a serious shortage of men if business was good," said John J. Gibson, secretary of the local dealers' association. "We are in need of expert mechanics right now, and although we have advertised for them far and wide none has been forthcoming. Two of my men left for war last week and four mechanics were drafted."

About 50 per cent of the salesroom men and about 25 per cent of the garage hands in Buffalo have gone to war, it is estimated. Therefore the same efficiency is impossible in the trade and dealers are complaining that they can no longer work up business in slack season as formerly. They say that women would be necessary throughout all departments if business were better. But, they claim, the last Liberty loan in Buffalo put a quietus to the car business and slowed down buying.

Much skilled labor in Buffalo has enlisted in the truck driving and repairing branch of the army and in this way Buffalo garages and repairmen have suffered greatly. Where one man worked before the abnormal times two are required now, for it takes two unskilled men to do the work of one skilled mechanic. However, the situation in Buffalo is not bad and dealers and garagemen say the deficiency in men has had no apparent effect so far but they are not very optimistic over labor conditions if the war continues.

So far they have made no efforts to make up the loss other than to try to replace the men, which is almost impossible. The Buffalo garages have not suffered quite as badly as the service stations conducted by dealers, for it seems that the draft struck these stations especially hard.

Cantonment Makes Business

DES MOINES—All branches of the motor car industry in Des Moines are feeling the labor shortage keenly, but the condition has not yet become so acute as seriously to affect business.

Motor car dealers, supply houses, garagemen and repairmen are affected practically the same and in each case it is only one class of labor in which there is a decided shortage. This is in skilled machinists and mechanics. Every branch of the industry in Des Moines reports a shortage of skilled and experienced mechanics.

There is no shortage of salesmen. From this class of employees a number of men were lost by enlistment but others were waiting to take their places. A considerable number of clerks also went to war, but in a number of cases women have been employed to fill up the gap. There seems to be no shortage of unskilled labor. As an illustration of this, last night the Clemen Auto Co., distributers for the Overland, ran a small want ad for two men to unload cars. This morning they had sixteen applicants.

Advertising and increased wages are the principal means being taken to maintain the present forces of the shops in the Des Moines industry. Some of the motor car dealers are making a studied effort to take young men and develop them.

It is not only the loss by draft and enlistment which is causing a labor shortage condition here. There is the heaviest demand that the city has ever known, a very material part of which is caused by the presence of 45,000 soldiers at Camp Dodge, eleven miles from Des Moines. Among the officers and men there are hundreds of motor cars and the Des Moines garages and repairshops receive the bulk of this business. Des Moines has really had to assimilate an entire separate city of 45,000 inhabitants.

Shortly after the declaration of war the Des Moines Motor Trades Bureau recruited nearly 150 men for the Iowa ammunition train and a large number of this unit came from the repairshops of the city, making a decided inroad on the forces.

Second Draft Will Hurt

LOUISVILLE, KY.—Few of Louisville's automobile dealers, supply houses, garagemen and repairmen have suffered as a result of a shortage of skilled labor. While experienced salesmen and mechanics have always been in demand, there has been little difficulty experienced in finding men who could be trained to fill these positions satisfactorily. Clerks and unskilled labor are plentiful.

The loss of man power felt temporarily by one or two distributers has not been general and has not had any serious effect on business.

Dealers and garagemen predict that a second draft of men will affect them to a great extent, however.

No Marked Difference

BLOOMINGTON, ILL.—Motor car dealers of central Illinois are woefully short of first-class men for all departments, but this situation cannot be credited entirely to the war. Mechanics capable of repairing motor cars have always been scarce, and this condition is not by any means new. There are always plenty of candidates for such positions, but a few days' trial demonstrates their lack of training. First-class painters are almost as scarce as mechanics. There is no marked shortage of salesmen, clerks or unskilled labor, although garage proprietors are constantly on the lookout for men of ability who can sell cars or who can show efficiency in the accessory department.

Plan on Second Draft

BALTIMORE—A survey of the labor field as it affects the automobile industry of this city does not show a very great shortage of labor at this time. A canvass, however, reveals the fact that when the draft is operated a little farther down the line there is going to be a big shortage of skilled mechanics and probably salesmen as well.

Salesmen as far as quantity is concerned are to be had, but the dealers are all looking for a better grade of men than they have at this time. In fact, a number of the dealers are already casting about into other lines to obtain salesmen with records and to fit them for the big spring drive and winter show season.

The big dealers, who have the business and the ability and the means to pay good wages are not short of skilled mechanics. There is a tendency on the part of mechanic helpers to drift from one place to another working about six or eight weeks at a time.

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Several of the painting companies have practically decided to shut down because of lack of help, while several garages making a specialty of repairs have closed down for lack of help, being unable to get and keep enough high grade men to do the work.

Older men are being attracted to the sales forces of several of the firms and mechanics in many instances are doing very good work on the selling end.

Twenty firms called on shows there could be used: Salesmen, 25; clerks, 30; skilled mechanics, 50; unskilled labor, 75.

The table is made up of places that some of the firm figure will shortly be made vacant on account of the draft.

The repairmen are doing their best to make mechanics out of unskilled men as rapidly as possible and are in many instances trusting work to this class of men that should be done by more experienced mechanics.

Electric Men Are Scarce

SAVANNAH, GA.—Electric workmen are scarce in Savannah. The wages which the government is paying to electrical men have attracted many of the men from the garages who had a knowledge of the working of electricity. In fact the allurement of big money has caused garagemen in many sections to lose their best mechanics.

Paying Higher Wages

PITTSBURGH—Up to the present time the motor car dealers, supply houses, garagemen and repairmen of Pittsburgh have suffered no serious inconvenience from a shortage of labor. Of course, there is a shortage of men in every line of endeavor due to the large number who have been called to the colors. It has not been necessary, however, to take any steps to make up this loss of man-power other than to pay more money and possibly be satisfied with less efficient workers.

Motor car salesmen are plentiful enough to meet present requirements. The automobile business has slowed down a little since November 1, and will probably continue that way until spring at which time there is a possibility that the shortage of help may become serious. Most of the motor car dealers and supply houses employ female clerks, particularly for office work. There is always a shortage of skilled mechanics and while the war has increased this shortage considerably, the situation has not become acute. Unskilled labor is also scarce but can be obtained if the employer is willing to pay the price.

So far, the loss of man-power has not had any serious effect on the motor car business and probably won't have until spring. By that time almost any condition is liable to prevail.

Dayton Well Supplied

DAYTON, OHIO — Labor conditions are not far from normal. All the dealers and garagemen are supplied with skilled and unskilled labor, though all feel the labor panic now affecting the country generally. The men have been treated universally well by the companies and have no ground for complaint.

But, when concerns lose a man it is far from easy to fill his place satisfactorily with a trained substitute. The Fisk Tire Co. of Dayton found it necessary to place their ads in the local papers for two weeks before they secured a workman for the particular job. The Ford company reports that it manages to keep supplied without ads, as it is possible to get help by quiet passing of the word. Other concerns, while anxious over results, have kept their full quota and get quite satisfactory results. However, with one accord, there is a feeling that labor conditions were never quite so intense and formidable as now.

The numerous demands financially made upon the automobile and accesory trade have made the situation acute. The high cost of living and the hysteria over what might be have added strain, and the condition grows worse rather than better. The employer of men is facing a serious psychological situation, but in Dayton he is on the job and standing pat for whate'er betides. The workmen trust their employers, as wise men, looking forward possibly to the time when they will need the like consideration from the latter. In a word, Dayton is secure.

Is Getting Serious

COLUMBUS, OHIO—The labor proposition among the dealers, garages, repair shops and supply concerns of the Buckeye capital is getting serious according to a consensus of opinion of those who are in a position to know. Labor, especially skilled men, is hard to get and when secured is harder to hold.

Unskilled labor in all lines is a difficult proposition at this time and garages and dealers are suffering from its lack as well as other lines of industry. Taking it all in all the proposition is getting worse and with more men called into army service the efficiency of many of the dealers and garagemen will be seriously impaired. Every step possible is being taken to remedy the situation but outside of installing certain labor-saving devices it has not met with much success.

Supply houses also feel the shortage of labor, but the proposition there is not as serious as in the sales agencies. Mechanical departments maintained by supply houses have been affected by the exodus of labor for war purposes. Clerks are also hard to get, especially experienced ones. Office help is scarce but this is not a serious proposition at this time. The Justus & Parker Co., one of the large supply houses, is getting along with short help without affecting its general service or efficiency to any great extent.

Garagemen and repairshop proprietors also have their troubles. Garagemen are especially hampered by lack of help both skilled and unskilled, around the garages. Night workers are especially hard to get and good washers are very scarce. This sort of help drifts from one garage or repairshop to another and cannot be depended upon. The problem of securing competent mechanics in garages is the same as that in sales agencies. But the garageman is still further bothered by the unskilled labor which he has to handle. On the whole the labor situation in Columbus is getting worse instead of better.

Don't Peddle Lies

DID you ever trace a rumor to its source? No—probably not. Because it is easier to pass it on than it is to trace it back. And besides it's lots more fun to spread "inside" information from "someone who ought to know." But if you are earning your bread and butter from the motor car business you had better forget every rumor you hear—and tell your informant to forget it too. For it is wrong—999 times out of 1000—and hurting you and your business.

A Motor World man had occasion recently to go to an automobile manufacturing town near Detroit. And he started a conversation with one of his fellow passengers—a workman, lately discharged from one of the automobile plants in the town, who had been to Detroit hunting another job. And this was the nest of rumors that man was glibly peddling:

1—10,000 *workmen had left the town in the past two weeks, having been discharged. Even the streets were deserted at night.*

2—*Plant No.* 1 *had reduced its output from* 3000 *per week to* 1800 *per week, and had laid off two-fifths of its employees.*

3—*Plant No.* 2 *had laid off* 50 *per cent of its employees, and reduced its output to that extent.*

4—*Plant No.* 3 *was to close completely next week.*

And though the writer knew this to be a misstatement, he knew there must be some facts behind the rumor. This is what he found:

The normal output of Plant No. 1 was 180 cars per day, and that every day it is producing 160 cars—or 90 per cent of the normal production. Men had been released, but these were not the producers. They were the excess loading men, laborers and driveaway gangs. The plant is simply getting to a war basis—and producing cars.

The present daily labor turnover of Plant No. 2 is about 60 men; that number being discharged or quitting each day, and the same number being hired. At one time the foundry was closed for a short period, because of a temporary lack of material, but these men are now working. Exclusive of the freight shipments, from 150-175 cars are being driven away daily, materials are coming in well, and large government contracts have been secured. This plant is also getting onto a war basis, and, though not discharging the good men, is cleaning out the inefficients, and holding its wage schedule constant.

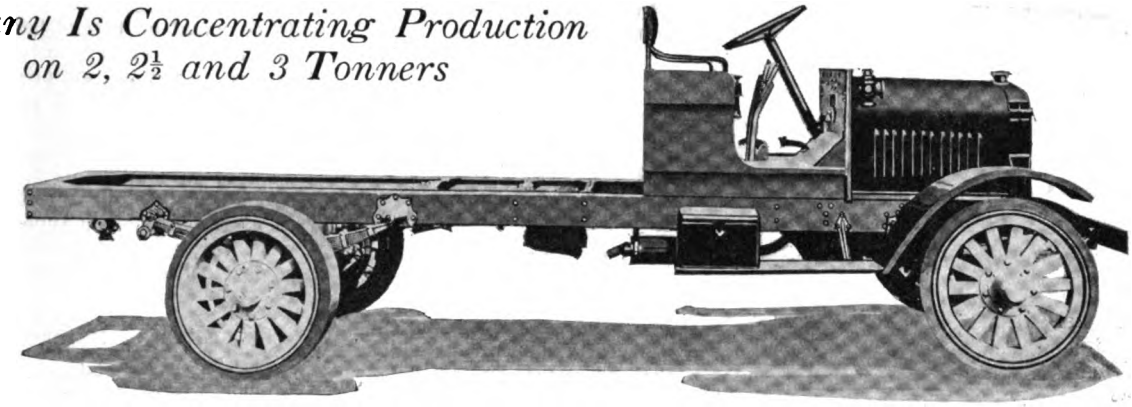
For the past two weeks Plant No. 3 has been conducting an inventory, but this has not interfered with the normal production to any extent. And this inventory is to continue for another week. In the body department, from 40 to 50 men were laid off for 3 days, but these are all now back at work. And this company will have new models at the shows.

When you hear somebody say that they heard somebody say that ought to know—don't believe it. It isn't so.

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Five Gary Truck Models

Company Is Concentrating Production on 2, 2½ and 3 Tonners



ALTHOUGH five models make up the line of the Gary Motor Truck Co., Gary, Ind., the company is concentrating its work at present on the three larger sizes—the 2-, 2½- and 3-ton capacities. Besides these three sizes, there are two others—a 1-ton and a 2½-ton, all worm-driven. One description will cover all of the three larger models with these exceptions: Motor size, wheelbase, frame and spring construction.

Four-cylinder Buda engines are used throughout the line. The powerplant in the 2- and 2½-ton jobs are identical, having a bore of 4¼ in. and a stroke of 5½ in., while the engine in the 3-ton model has a 4½ in. bore and a 6 in. stroke. In the 2- and 2½-ton models the gearset is in a unit with the engine, while in the 3-ton it is located amidships. Road speeds of the former two models are limited by a governor on the engine to 15 m.p.h. while on the latter there is a duplex governor which limits the road speed to 12 m.p.h. and that of the engine to 1200 r.p.m. The engine in this model develops 52½ hp. at 1200 r.p.m.

Lubrication in all models is by gear pump in connection with the conventional splash system, with an oil level gage on the reservoir and an oil pressure gage on the dash. Cooling is by centrifugal pump and the radiator is mounted on springs to relieve road shocks and strains. Eisemann high-tension magneto furnishes the ignition on all models, that on the 2-ton being set spark and on the other two automatic advance. Fuel is taken through a Stromberg automatic float feed carbureter with hot air attachment from the tank under the driver's seat.

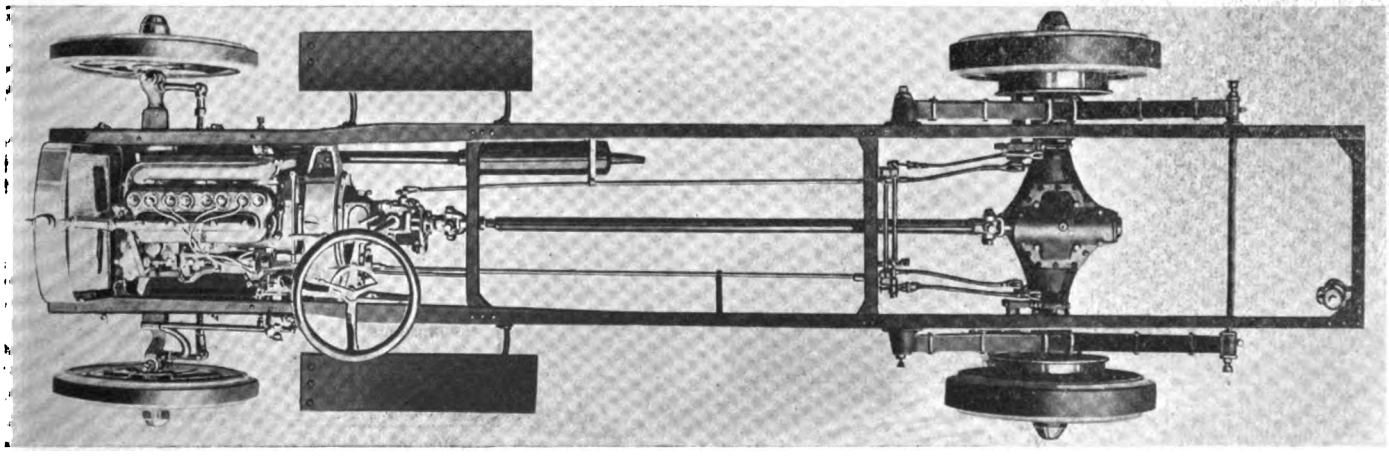
A Raybestos-faced dry disk clutch is fitted to all models. The clutch is operated by a ball throwout bearing and the steel disks are hardened as well as all pins, which reduces wear. Whereas the 2- and 2½-ton models have a three speed gearset, the 3-ton has four. In the two former the reverse idler gear runs on a solid steel roller bearing, thus eliminating bronze bearings inside the transmission. In the 3-ton the gear ratio in the gearset is 4.99 to 1 in first, 3.16 to 1 in second, 1.79 to 1 in third and 1 to 1 in fourth, while the gear ratio in the rear axle worm is 8.75 to 1. This gives a low speed gear reduction between the engine and road wheels of 43.66 to 1.

The worm-drive rear axle in all models is the same except that the 3-ton is built heavier. Throughout the line the semi-floating type of rear axle is employed. In the front an I-beam axle is used, having nickel steel spindles with large ball thrust bearings between axle yoke and spindle head. The bed is made of carbon steel, the knuckles and steering levers of alloy steel, heat-treated. The pivot bolts and clevis pins are hardened and ground and revolve in hardened and ground bearings.

Both service and emergency brakes are internal expanding, those on the two lighter models being 2¼ in., each operating inside an 18-in. drum, while those on the 3-ton are 2½ in., operating in a 20-in. drum. Springs are semi-elliptic all around, those on the 2-ton being 2½ x 40 in. in front, nine leaves, and 3 x 54 in. twelve leaves in rear; on the 2½-ton, 2½ x 40, eleven leaves in front and 3 x 55, thirteen leaves rear; on the 3-ton, 3 x 44, ten leaves, front, and 3½ x 56, fourteen leaves, rear. On the two lighter models the frame is 6 in. channel and on the 3-ton, 7 in.

Sewall cushion wheels are used throughout. The 2-ton model comes with pressed-on Goodyear S. V. or Goodrich tires, 36 x 4 in front and 36 x 6, rear. The 2½-ton is fitted with Goodrich 36 x 4 tires in front and 36 x 7, rear. The 3-ton comes with either Goodyear S. V. or Goodrich 36 x 5 in front and 36 x 5, dual, rear.

The steering gear is the irreversible worm and split nut type, a 20-in. wheel being fitted to the two lighter models and a 22-in. wheel to the 3-ton. There is both foot accelerator and hand throttle on all models.



Plan view of Gary truck, showing powerplant and other mechanical details

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Equipment consists of open driver's seat, side and tail lamps, tools, etc., and the 2½- and 3-ton models are fitted with Buell whistles. A special Vesta electric lighting system consisting of generator, battery, two headlamps with dimmers, tail lamp, gage lamp on dash, with complete fittings is furnished if desired. Special bodies will be fitted to meet individual requirements.

Fulton Truck Improved

Has Larger Engine and Heavier Axle and Springs

AN improved model Fulton truck of 1½ tons capacity has just been brought out by the Fulton Motor Truck Co., Farmingdale, Long Island. This model will be known as F-X and is an amplification of the F-1 model delivered last year, with a change in the power plant and transmission and numerous refinements to simplify operation.

The engine is a Herschell-Spillman. It is a larger and heavier engine throughout than has heretofore been used in Fulton trucks, is of L-head type with four cylinders 3¼ x 5, and develops from 36 to 38 hp. under normal working conditions. The cylinders are block cast and each piston has four rings. A much higher compression than before with variable spark and other engine refinements are features.

Extra Large Valves

Valves are 3¼ in. in diameter and ignition is by Dixie magneto. A Carter carbureter is used, having but one adjustment acting on the air supply, and the engine is not governed. A speed of 25 m.p.h. is attainable, though the recommendation for the truck is but 15 miles, and operating speed is left to the judgment of the driver.

Foot throttle and variable spark is against the set spark and throttle on the wheel used on the old model are provided for greater ease of operation, efficiency and flexibility.

The gearset is a unit with power plant, and is of 3 speed type geared to the load at 8.2 to 1 in high speed. Driving is through Borg & Beck clutch.

Load Well Balanced

The rear axle is set well back under a load platform of 9 ft., measured from the rear of the cab to rear end of frame, permitting of the balancing of the load where overhanging bodies for bulk carrying are advisable. The axle is a Russel Internal Gear type, strengthened and heavier than that used on the F-1 model of last year. The load is carried on a dead rounded axle of chrome-vanadium steel. The jackshaft sets forward on the dead axle, which shortens the length of the driveshaft and adds sturdiness to that member. The front axle has been slightly enlarged and strengthened.

The frame has had no changes since the first models were brought out. The Fulton radiator, rounded hood and tank on dash with gravity feed have not been changed.

The brake arrangement has been changed to bring the brake rods inside the frame, and supply heavy equalizers, easily accessible, just behind the dead rear axle. This arrangement eliminates the necessity of frequent brake adjustments so usual on trucks handling variable loads.

Springs are now supplied with 11 leaves instead of 10, and all leaves are made from heavier stock. Spring eyes are double wrapped, thus bringing two leaves over the forward rear spring pin to give ample surplus resistance to the thrust of the Hotchkiss type drive. This drive is through the springs, and the frame is cleared of all torsion rods and struts.

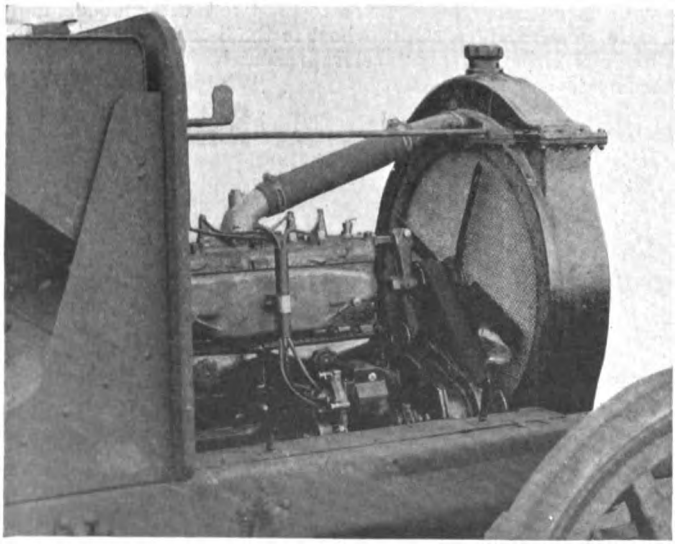
Strength Increased

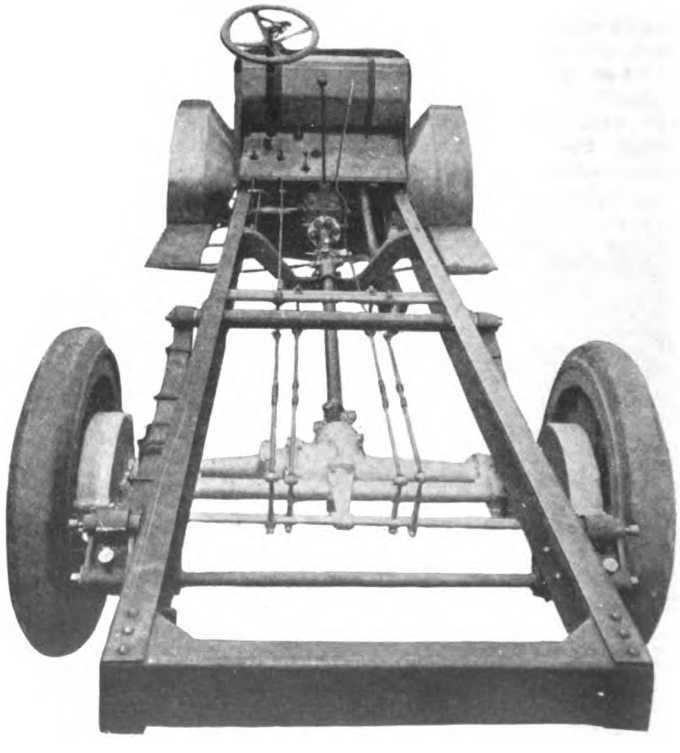
A change to heat-treated malleable castings and drop forgings in numerous parts for greater toughness and strength; new hood fasteners, change in the steering column assembly, a new radiator support, new starting crank bearing, grease cups instead of oil cups, lamp brackets on the dash, heavier fenders, castellated nuts and jam nuts on all bolts, and many other improvements are included in the new design.

Tire equipment is of 34 x 3½ front, and 34 x 5 rear, single solid tires of standard makes.

To Train War Workers

WASHINGTON, D. C., Dec. 17—Creation of a war training department to administer a system of vocational training for drafted men was announced by the Federal board for vocational training. This department wil co-operate with the War Department and the shipping board in supplying skilled men for war work. The department will establish free vocational schools and classes to train men in large numbers. It is already training 15,000 radio and buzzer operators for the Signal Corps.





Above—The engine, a Herschell-Spillman, is heavier than that previously used. It is of the L type, has four cylinders and develops from 36 to 38 hp. Right—The axle is set well back. The gearset is a unit with the powerplant and is of the three-speed type

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The Week in Washington

WASHINGTON, Dec. 17—An order issued by A. W. Shaw, chairman of the Commercial Economy Board of the Council of National Defense, last week for a meeting here Dec. 18 of several representatives of the automobile dealer associations marked the chief event of the week. Shaw, queried by a representative of Motor World as to the cause for the meeting, threw consternation into the minds of those who have witnessed the sane handling of the automobile industry shown in the past few weeks by remarks to the effect that the industry was already curtailed, would be considerably more curtailed by the Government, was necessary for munitions work, was working injury by selling passenger cars to the public at this time, and that the workers of the industry were required for other war work.

He planned to inform dealers of these conditions and invite them to discuss means for pooling their businesses, and in other ways meeting such conditions.

Facts and arguments failed at first to move Shaw who was informed of the fact that most of his opinions and in fact all were not in accord with the finding of the War Industries Board and others who have been making a careful investigation, and the matter was addressed to the director of automotive matters, H. L. Horning, in the form of a letter of protest which Mr. Horning in turn took up with W. E. Gifford, director of the Council.

Shaw Convinced of Error

This resulted in a considerable agitation and a number of conferences and it now appears that while the meeting will be held as scheduled, that Shaw has been convinced of the errors of his original views, and will while conducting the meeting take it up more to discover economies he can effect in the retail automobile industry than for any other purpose.

At the same time, however, the matter is not completely ended, for publicity sent out by the Council of National Defense shows that there is still some belief there that the industry has suffered a considerable curtailment, is required for war work, and must soon convert its facilities to such work. These matters will have again to be taken up for discussion, and it will again be necessary to show to the members of the Council and the War Industries Board that there really are no contracts that require the conversion of the automobile industry, that the industry's business is not suffering as stated, and that the demand for workers, as stated by L. C. Marshall, chairman of the Council's industrial service board, "does not show an actual shortage of labor" and that "there are no figures to show that there is such a shortage."

The statement issued by the Council is:

"Reduction of production in the automobile field by many of the country's leading automobile manufacturers has given rise to a problem among automobile dealers. Likewise manufacturers are seeking to avoid duplication and pointless multiplication of agencies. The dealers are coming for a preliminary discussion of the conversion of both agencies and labor to war time uses and to discuss other problems growing out of the curtailment of pleasure car production."

It will be noted that the statement persists in the use of the word "pleasure" despite the vast publicity showing that motor cars are entitled to be called "passenger cars."

Considerable interest is shown in the mysterious power called "Garabed" and mentioned in news dispatches this week. This virgin natural power is said to be capable of moving airplanes or battleships around the earth without other energy or fuel.

The railroad situation here remains the same. The President, favoring Government supervision of the railroads, has already secured the permission of the union brotherhoods for taking them over and will probably attend to this early in 1918 following the holidays.

Interesting news on the freight car situation is found in the statement that one freight car maker is now turning out a freight car an hour. At this rate and with the quickened production throughout the country of both freight cars and locomotives, which for example the Baldwin people are turning out at the rate of one hundred a week, we should soon have an ample supply of both to handle all freight both for war and mercantile needs.

The War Industries Board also learned this last week that the copper supply of the nation is ample to care for all requirements and that there need be no fear either over the copper supply or the copper labor situation. This assures freedom from trouble for the industry from that source. The first A trucks at the Ardmore and Denby plants have been completed and will soon start their journey overland to Washington. The Denby job was finished Saturday, the Ardmore job to-day.

Cheerful news comes from the Aircraft Production Board showing that both airplanes and aviators are being turned out in numbers that assure adherence to the original schedule. Very interesting also is the fact that the English and French Governments have asked our Government for numbers of these Liberty engines, showing that despite reports to the contrary the Allies are finding the Liberty engine worthy and equal or better than their own.

Will Ask Repeal of 3% Tax

Motor and Accessory Makers Introduce Resolution at Detroit Meeting—Steel Situation Much Easier

DETROIT, MICH., Dec. 14—Passing a resolution asking Congress to repeal the present 3 per cent manufacturers' tax against automotive apparatus indicated a new spirit which has at least taken hold of 150 or more manufacturers of parts and accessories for automotive apparatus, these makers realizing that automotive apparatus is a national necessity in these war days when 5000 mules per day are being shipped out of the country and the only thing to take their place is the automobile, the motor truck and the farm tractor.

Such a resolution was passed by the Motor and Accessory Association at its meeting held in this city yesterday, when it met with the Automobile Industries Committee of Washington, which came from that city to advise the manufacturers regarding the co-operative work it is doing. In addition to Messrs. Copland, Chalmers, and Lee, constituting this committee, Christian Girl, chairman of the Military Truck Production Board, and president of the Standard Parts Co., also came from Washington to address the manufacturers.

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Yesterday's meeting represented the correct spirit that should dominate manufacturers producing parts for industries so essential as the automobile, motor truck, farm tractor, airplane and motorcycle, and while the resolution asking for a repeal of the 3 per cent manufacturer's tax indicated the patriotic spirit of those present in their efforts to preserve essential industries, there were other resolutions passed which showed that the makers are facing the present war problems constructively and are ready to give very material assistance.

No Worry About Steel

Mr. Girl declared that the steel situation need not worry any maker but that there is more steel in the country than can be used, and that in 2 months steel factories will be begging for business of a structural nature. Ferro-chrome is the only grade which it is impossible to supply in the quantities demanded, but for spring business silico-manganese steels will take the place of chrome in a satisfactory way. Approximately the only parts which cannot be manufactured without chromium are ball and roller bearings, and the manufacturers went on record with a resolution requesting that the ball and roller bearing industries be taken care of with the chromium that is available, so that existing standards in bearings, which affect the entire design of parts, should not have to be changed.

It was the consensus of opinion that our Government should adopt the policy of putting a premium on the industry rather than attempting to retard it. A general feeling of optimism prevailed, which was satisfactory evidence of a growing conscientiousness in the minds of makers of parts and accessories that such is the logical program for a government and that curtailment has no place in war times.

Against Taxation Methods

With regard to the resolution asking for a repeal of the 3 per cent tax, this resolution is intended to show the feeling of the industry against the present method of taxing the manufacturer. There is no thought of a lack of patriotism, or unwillingness to bear its just load of taxation in such a resolution, but solely because the business with the present prices of materials and existing prices of products cannot carry the load and must pass it on to the consumer. The financial executives in charge of government business in Washington, not understanding the automobile industry, may be inclined to increase this tax another 2 per cent, putting it at 5 per cent, which was talked of last fall.

Resolve to Curtail Shipments

A constructive act of the meeting was a resolution curtailing railroad shipments of less than 25 miles, the thought being to relieve railroads of this short haul work and have it handled by motor truck. This would not only increase motor truck business, but it would relieve railroad terminals and railroad capacity in cities of that congestion which is destroying railroad efficiency to-day.

Hugh Chalmers, of the Automobile Industries Committee, duplicated his talk of 2 weeks ago before a similar meeting held in this city by the N. A. C. C. when he converted a meeting permeated with pessimism into one of rational enthusiasm when he told the members of that organization and others that the automobile was an essential industry, which many of them hardly believed.

Must Preserve Industries

At yesterday's meeting Mr. Chalmers' attitude was that industries must be preserved during the war. No factory should be alarmed as the Automotive Section of the War Industries Board and the Automobile Industries Committee could both assure the makers that there will not be any governmental curtailment of outputs but rather all organizations can be held intact. There has been too much gloom spreading through the industry, much of which is due to this being a certain section of the year which in peace times shows a falling off in business. Too many are interpreting this condition at present as being due to the war, which is not the case. The beginning of the year will show a marked increase in demand, and the opening of the New York show will undoubtedly put new energy into the industry.

Girl Speaks on Material Situation

Christian Girl spoke on the material situation, on the method of securing contracts for government work, and on the way in which the Automotive Product Section and the Automobile Industries Committee are handling the work in Washington. These bodies, according to Mr. Girl, intend to have on hand blueprints which will cover all the work which the Government *requires from the automobile industry*. Then, when a factory which is working up to 80 per cent capacity needs some other business to fill the other 20 per cent, it will only be necessary to go to this committee and consult with them as to the work which they will best be able to handle, and this can be done immediately by referring to the blue-prints on hand. This cuts out a great many round-about steps in getting to the proper authorities and getting an opportunity to see the blueprints. By this means the small factory will be taken care of as well as the large.

Caring for Small Plants

One of the questions brought up at the meeting was on the way in which small factories which are suffering from business depression can make up for their lack of output by government work, and many of these factories would not be able to stand the expense of keeping a man in Washington, which Mr. Girl suggested would be the best way of keeping in touch with what is required. This representative in Washington would be enabled to keep constantly in touch with what is needed, and by so doing would have an opportunity of getting work which is desired for immediate production.

Mr. Girl stated that one of the big difficulties which factories are up against is due to the unbalanced condition of their inventories. It is, of course, only possible for a factory to build up to the amount taken care of by the lowest member on its stock inventory. A company may have frames and all other parts for 10,000 cars, but may only have 250 propeller shafts. A company in this condition would only be able to build 250 cars. The Government, according to Mr. Girl, ought to allow the factories to have an opportunity to balance their inventories, so as to turn the idle stock into cash.

Freight Hauls by Truck

Christian Girl, B. F. Tobin and E. H. Broadwell were appointed a committee to prepare resolutions to go to the Interstate Commerce Commission to the effect that the automobile industry be called upon to make short freight hauls with a view to relieving the railroads.

Considerable interest was exhibited in the big munitions concern known as the Detroit Shell Co., details of which are given in other columns. Many of the representatives of companies which are participating in the big $2,000,000 concern were present at the meeting.

The Motor and Accessory Manufacturers organization enthusiastically indorsed the work of the war committees as typified by the Automotive Industries Board and the Automobile Committee, and expressed themselves as well satisfied with the work which these committees are doing and the methods suggested for using the committees as a clearing house for future Government business.

"Farm to Table" by Truck

WASHINGTON, D. C., Dec. 15—J. A. Thornton, postmaster at Philadelphia, is inaugurating a "farm to table" movement by the use of motor truck parcel post routes between Philadelphia and Baltimore, utilizing the products of the farmers between these cities. Later it is planned to extend the service to New York City, and to other points in Pennsylvania.

Two trucks will operate at the beginning, working on a regular schedule and accepting all kinds of parcels, with preference given to perishable food products such as butter and eggs. The postal authorities hope to show the great value of this work and anticipate that a whole fleet of trucks may be in operation within a year. It is also planned for the future to lower parcel post rates to make this service as attractive as possible to the farmers and dealers.

Cadillac Truck Now Acme

CADILLAC, MICH., Dec. 14—The Cadillac Auto Truck Co. is now styled Acme Motor Truck Co.

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$2,000,000 Syndicate Will Produce Shells

Practically Every Car, Parts and Truck Maker in Detroit Is Represented

WASHINGTON, D. C., Dec. 17—The Automobile Industries Committee, returning from its Detroit journey, announces the formation of a $2,000,000 syndicate to manufacture shells for the United States with about $30,000,000 worth of contracts assured up to September, 1918.

The officers of the syndicate include: John Kelsey, Kelsey Wheel Co., president; R. B. Jackson, Hudson Motor Car Co., vice-president; Harry M. Jewett, Paige Motor Car Corp., vice-president; Walter Drake, Hupp Motor Car Co., secretary; Edsel Ford, treasurer.

Executive committee includes: H. M. Jewett, W. E. Flanders, Maxwell Motor Car Co.; A. Demory, Timken Detroit Axle Co., and Max Wallering of Studebaker Corp.

Directors include all of above and E. P. Hammond, Gemmer Mfg. Co.; W. E. Metzger, Columbia Motor Car Co.; B. F. Everitt, Alvin McCauley, Packard Motor Car Co.; Richard Collins, Cadillac Motor Co.; W. C. Rands, Motor Products Co., and John Dodge, Dodge Brothers.

Two factories, both in Detroit, are now being considered by engineers representing the syndicate, and a choice will be announced later this week.

Practically every parts, car and truck maker in Detroit is said to have representation in the syndicate, either as officers of the company or as stockholder. The entire stock was subscribed within 23 hours after arrival of the committee in Detroit, and the officers, by-laws and file for approval of secretary of state was accomplished within an additional two hours.

Northwestern Salesmen Convene

BILLINGS, MONT., Dec. 8 — The Northwestern Auto Supply Co. held a sales convention Nov. 1 to 10. Definite sessions were held, each of which was devoted to a particular subject. The convention was limited to members of the sales department with the exception of one session at which seventy-five local dealers were invited to attend a "Mysterious Night" celebration at which the convention room was made to represent an old-time western gambling hall.

Hartford Men Join the Colors

HARTFORD, Dec. 17—Hartford motor car agencies have been depleted by the war. In practically every case experienced salesmen have been concerned. Graham M. Wells, high man of the Willys-Overland sales force, left this week for Newport naval training station. A. H. Hayward of the Colonial Automobile Co. and George A. Kronsberg of the Packard company have gone to the same place. The Ford dealer has been hit hard. E. P. Chesbro, Jr., manager of the new Windsor Locks branch, Fred G. Nason of the Willimantic branch, C. M. Carlson of the Bristol branch and George B. Sampson, manager of the New Britain Elmer-Ford branch, have enlisted. Branch Manager Chesbro was tendered a farewell dinner by L. H. Elmer of the Elmer Automobile Co. and was presented with an Elgin wrist watch by his associates. Graham Wells was presented with a wrist watch by the Overland sales force.

Webster Issues War-time Warning

CHICAGO, Dec. 17 — A warning against dangerous alien workers has been issued to the trade by Commissioner William M. Webster of the National Association of Automobile Accessory Jobbers. This warning points out how manufacturers especially can guard against damage to their plants by explosions and fires caused by alien sympathizers. The warning follows:

Hire no one until you have investigated the applicant's references in the last place of employment—better, the last two or three places—and if the applicant cannot account fully for the time between the last regular place of employment and his time of application to you, do not hire him.

Be extremely careful with all applicants with German, Austrian, Bulgarian or Turkish names or antecedents, and look out for and notify the authorities of all persons of whom you may be suspicious and who frequent your section or loiter around your plants or places of business.

Have your electric wiring inspected at frequent intervals.

Make sure that no strangers enter upon your property carrying suitcases or other bundles or bulky packages concealed in their clothing, and if strangers or even employees present themselves with such packages see that they are thoroughly inspected as to their contents.

Place all oils, gasoline, naphtha or other materials of highly inflammable or explosive nature in places of safety and in charge of responsible help.

Allow no waste or inflammable or combustible materials to accumulate in or about your premises or plant.

See that all entrances, doors or gates that are not guarded are securely locked or fastened.

Have frequent fire drills and have certain men instructed as to the exits to be used for their particular department. Have all your factory entrances guarded by loyal American watchmen on whom you can depend.

Mechanics May Still Enlist in Ordnance

May Also Go Into Signal Corps After Passing Physical Examination—The Plan

WASHINGTON, D. C., Dec. 17—Although the privilege offered them for volunteering for military service expired Dec. 15, registrants in the draft may still get into many branches of the Army or Navy if they can pass physical examination and are not in the immediate draft call. This applies to both the Ordnance and Signal Corps, which require automobile mechanics in great numbers.

The new plan, known as the voluntary induction plan, differs from enlistment in that the individual who desires to enlist must go to his local board, which will act as the recruiting station, the board receiving the credit for the additions thus made to the Army and Navy. Any man desiring to enlist can apply to his local board for examination, state service he desires to enter and await orders, which will follow soon thereafter.

Departments still open for voluntary induction under the above plan are the Signal Corps, Quartermaster Corps, Medical Department, Infantry, Aviation section, Ordnance Corps.

Texas Dealers Won't Visit New York

DALLAS, Dec. 17—Believing it would be unpatriotic to charter a special train for the New York and Chicago Automobile Shows, the Dallas Automobile and Accessory Dealers' Association this week decided to abandon plans for this year's trip. The dealers have been considering chartering the special train for several weeks. At a mass meeting of the dealers, however, it was decided to abandon the plans.

Oklahoma City Show Jan. 22-25

OKLAHOMA CITY, Dec. 15—The second annual automobile show under the auspices of the Oklahoma City Motor Car Dealers Association will be held Jan. 22-25 in the new building of the Carhart Motor Co.



Here are the members of the Northwestern Auto Supply Co. who gathered at the plant Nov. 1-10

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Deering Magnetic Car Has Entz Transmission

Product of New Company Has Dorris Engine and Chassis with Magnetic Transmission

CHICAGO, Dec. 14—A new car featuring the Entz magnetic transmission is to be produced by the Magnetic Motors Corp. just organized in Chicago. This corporation combines the Baker R. & L. Co. and the Owen Magnetic Motor Car Co. The former has been the distributer for the R. and L. and also has the service of the Stevens-Duryea. The Owen Magnetic Motor Car Co. has been distributer in this territory for the Owen Magnetic in addition to serving as the distributer of the R. and L. and the Owen Magnetic.

The new company will constitute the sales organization for the new car which will be styled Deering Magnetic.

Officers of the new concern are: R. S. Deering, a former naval electrical engineer; W. G. Pancoast, manager of the Owen Magnetic agency and for 5 years sales manager of the R. & L. Electric Co., Cleveland, and Paul A. Frank, a Chicago dealer in electrics.

The new Deering Magnetic is to have a Dorris six-cylinder engine and the chassis except for the Entz transmission will be a Dorris production. The chassis will carry bodies designed by Carl H. Martin. The Dorris engine has been selected because it is believed to be peculiarly well adapted for use in the magnetic transmission, first on account of its low compression and large overhead valves and also because of the seven bearing crankshaft.

This car will make its initial appearance at the Chicago salon and arrangements have been made for a production of 1000 as the first lot.

The price will be about $4,000 and it will appear as a seven-passenger touring car, coupe and sedan; Rudge-Whitworth wire wheels will be stock equipment and judging from the designs which have already been produced by Martin the appearance of the car as a whole will be striking.

To Make Industrial Survey

WASHINGTON, Dec. 17—George W. Peek, industrial representative of the War Industries Board, has been authorized by the Council of National Defense to make an immediate industrial survey of so-called non-essential industries that may be converted to supply war needs. Peek will be assisted by the Commercial Economy Board.

Bate and Pelton Out of Mitchell

RACINE, WIS., Dec. 17—John W. Bate, for many years vice-president and chief engineer of the Mitchell Motors Co., Inc., and its predecessor, the Mitchell-Lewis Motor Co., has severed his connection with the company. His future plans have not been made public but it is understood he will devote his attention to his many other interests in Racine. F. W. Pelton, Western sales manager, has also resigned to take more active part in a shoe manufacturing concern in which he is interested.



TOLEDO, Dec. 17—The Champion Spark Plug Co. has developed a way to help Hoover. This is one of the signs which it is erecting in various parts of Michigan, Ohio and Indiana. These signs have been produced by the outdoor advertising department of the company and have been put on display on post offices in Indianapolis, Terre Haute, Dayton, Springfield and So. Bend, "and we are still at it," says the company.

Use Trade Acceptances

(*Continued from page 7*)

3—The seller can more accurately calculate his collections for stated periods.

4—He can extend credit better and with greater knowledge of where he gets off.

5—He has a two-named paper to present to his bank for discount.

6—He disposes of disputes as to accounts. The acceptance of the acceptance by the buyer is legal proof of the validity of the account.

Things You Can't Do

1—Can't use the acceptance for other than merchandise transactions.

2—Can't use it on overdue accounts. It covers current accounts only.

3—Can't provide for payment in any other than the buyer's home office or home bank unless the acceptance otherwise formally so specifies.

The acceptance has been discussed in this story from the standpoint of the dealer and jobber in accessories and supplies, but it may be used by car dealers and distributers as well. It can be used in any business to cover the sale of merchandise.

N. Y. Show Free to Soldiers

NEW YORK, Dec. 17—Tuesday, Jan. 8, will be Army and Navy day at the New York show in Grand Central Palace. Manager Sam Miles will admit all sailors and soldiers in uniform free.

Scripps to Have Six On Exhibit at Shows

Will Have Overhead-Valve Engine and Characteristic Bodies—Sills a Director

DETROIT, Dec. 15—The new board of directors of the Scripps-Booth Corp., which is now under the control of the General Motors Co., was completed at the adjourned directors meeting held yesterday by the election of W. C. Sills, general sales manager of the Chevrolet Motor Co. as director. The full board, as it now stands is as follows:

President, A. H. Sarver, formerly manager of the Buick Motor Co., Pittsburgh, Pa. Directors: Fred. W. Warner, president and general manager of the Oakland Motor Car Co.; Edward Verlinden, president and general manager of the Olds Motor Works; W. C. Sills, general sales manager of the Chevrolet Motor Co.; W. H. Little, formerly president of the Sterling Motor Co.; F. J. Sensenbrenner, vice-president and treasurer of the Kimberly-Clark Co., Neenah, Wis.; N. J. Miller, Miller & Co., bankers, New York.

At this time the first of the new six-cylinder cars to be exhibited at the New York and Chicago shows was inspected. The feature of this car is to be a six-cylinder valve-in-head engine, 2 13/16 x 4¾ in., having the cylinder cast enblock, together with the distinctive body lines characteristic of Scripps cars in the past, but modified to the sharp moulded edge at present popular.

W. C. Durant, president of the General Motors Co. and of Chevrolet, was also present, and the production plans for the present year were discussed.

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And Now They Would Curtail the Dealers

Commercial Economy Board Calls Meeting of a Few Men to Present Radical Views

WASHINGTON, D. C., Dec. 17—The old cry of curtailment has again been raised after the War Industries Board had gone through the plan and discarded it as unsuitable as a war-time measure. This time the cry comes from the Commercial Economy Board, of which the chairman is A. W. Shaw, Chicago, who also is the publisher of System.

Shaw has called a meeting for to-day of representatives of the dealer associations in Boston, New York, Chicago and some other places and also of the National Automobile Dealers Association, recently formed with George W. Browne, Milwaukee, as president.

He states that the object of the session is to formulate, if possible, plans whereby the dealers may cut their cost of doing business, and at the same time he makes suggestions that the sale of passenger cars will do great harm, that dealers should "pool" their businesses, that the country needs 1,000,000 men from the motor car factories, that all "thinking men" agree with Mr. Shaw, etc., etc.

Shaw's views were laid before H. L. Horning, chairman of the Automotive Products Section of the War Industries Board, who called in Alfred Reeves, manager of the N. A. C. C. and asked him to take the matter up with Shaw. Horning also informed Director Walter E. Gifford of the Council of National Defense that Shaw is acting at cross purposes with the Council and does not seem to understand the situation as relates to the motor car industry and the War Industries Board.

Somewhat of a check was temporarily put on affairs but the scheduled meeting is nevertheless still on the calendar.

CHICAGO, Dec. 17—President Joseph Davis of the Chicago Automobile Trade Association left for New York to-day on the Twentieth Century to consult with New York dealers on the meeting called by the Commercial Economy Board. He will proceed to Washington Tuesday night.

NEW YORK, Dec. 18—President Charles M. Browne of the New York Automobile Dealers Association and Manager Charles A. Stewart will leave tonight for Washington to attend the meeting called by the Commercial Economy Board.

BOSTON, Dec. 17—President John N. McAlman of the Boston Automobile Dealers Association and John H. Johnson, a director, left to-day for New York for the meeting called in Washington Wednesday. En route they will consult with New York dealers and with Manager Alfred Reeves of the N. A. C. C.

MILWAUKEE, Dec. 17—George W. Browne, president of the National Automobile Dealers Association will attend the dealers' meeting in Washington Wednesday, representing the national association and also the Milwaukee dealers' organization.

Overland Holds Salon

NEW YORK, Dec. 17—Willys-Overland, Inc., are holding their first Chicago Salon at the Congress Hotel this week and a similar one at the Hotel Astor, New York. They are exhibiting a wide variety of standard and custom-built enclosed bodies mounted on the four- and eight-cylinder Willys-Knight chassis. The Willys Six with a six-passenger sedan body is also shown.

The complete exhibition comprises ten cars, only one of these being an open car, the eight-cylinder Willys-Knight Varsity which is a tastily designed four-passenger roadster. Among the enclosed cars are two custom-built broughams and two landaulets.

ON several occasions complaints have reached us of late delivery of copies of Motor World. Where this has occurred it has been due to the fact that the New York post office has lost 30 per cent of its expert distributers through the draft and enlistment in the army. A contributing trouble has been the reduction of train schedules, one road having taken off 300 trains, for example. Delay has also been caused by congested conditions at several post offices, but these are rapidly being improved.

Maibohm Four Now Has Sporty "Six" Brother

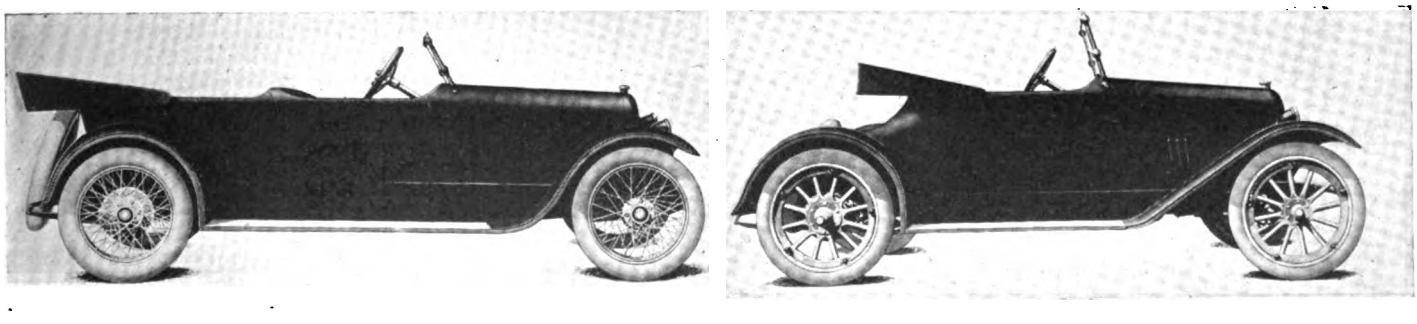
Sells at $975 and $1375—Has Wide Doors and Is Dressed Up for the Fastidious

RACINE, WIS., Dec. 15—A light six-cylinder chassis with two open and two closed body models has been added by the Maibohm Motors Co., Racine, Wis., to the four-cylinder runabout. There is a four- to five-passenger sport phaeton with wide doors, double cowl and straight line body at $975; a sport roadster with a large luggage compartment, at the same price; a touring sedan with permanent top and disappearing sides, and a sport coupe, both selling at $1,375.

The engine is a six-cylinder Falls, 3⅛ x 4¼ in. Valves are 1½ in. diameter by 13/32 lift and are readily adjusted at the cylinder head. The crankshaft is a 2¼ in. Wyman-Gordon of chrome nickel steel counterbalanced. Lubrication is by a cam operated piston pump to main bearings with splash to cylinders and front gears. Cooling is by thermo-syphon.

The carbureter is a Stromberg fed by a Stewart vacuum system from a 14-gal. tank in the rear. Ignition is by Atwater Kent with hand in vamp, the unit being mounted on the left rear jack of the crankcase and driven from the camshaft direct. Starting and lighting is supplied by a Wagner 6-volt, two unit system with Bendix drive for the starter and generator driven through the front gear case. A Willard storage battery is supported in a steel cradle under the front board.

The engine is in unit with a Borg & Beck dry plate clutch and a Mechanics three-speed gearset, the gears being S. A. E. nickel steel specification No. 2340, 7-9 pitch, ¾-in. base, 20 deg. involute. Gearshift and hand brake control are in the center and have overhung levers within easy reach of the driver. Two 4½-in. universals and a tubular propeller shaft take the drive to a floating Currew axle. Front springs are semi-elliptic 36 x 1¾ in. and rear springs 49 x 1¾ in. semi-elliptic underslung. Artillery wood wheels with demountable rims and one spare with carrier, Goodyear tires 32 x 3½ with straight sides are used. The wheelbase is 115 in. and the weight of the touring model is said to be 2407 lb.



THE NEW MAIBOHM SIX has that attractive rounded appearance styled "sporty." Both these models sell at $975, and there is a touring sedan and coupe type that costs $1375

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7 Dealer Zones Are Set Up by Overland

Manager of Each Division Has Full Power to Act for Company —Some Changes Made

TOLEDO, OHIO, Dec. 15—The Willys-Overland, Inc., has developed a new sales department organization to bring the factory into closer touch with the dealer organization. Under the new system, the country is divided into seven divisions, each of which is under the direct supervision of a resident division manager who has full power to act for the company. Two new executives have been brought into the organization for this plan, J. I. Handley, manager of the east central division, formerly of the Mutual Motors Co. of Jackson and A. C. Barber, manager of the west central division, formerly with the Moline Plow Co.

The following are the managers, with their divisions and headquarters:

Manager	Division	Headquarters
J. I. Handley	East Central	Toledo, Ohio
A. C. Barber	West Central	Moline, Ill.
William L. Colt	Eastern	New York City
George H. Cox	Midwestern	Kansas City
F. C. Riggs	Western	San Francisco
E. N. Culver	Southern	Atlanta, Ga.
C. M. Leroux	Northwestern	Minneapolis

Among the changes in the factory, George M. Berry, formerly director of branches, and K. R. Jacoby, formerly assistant manager, will be associated with Vice-President Edwin B. Jackson in the capacity of assistant commercial managers.

Hercules Elects Officers

MILWAUKEE, Dec. 14—The Hercules Motor Truck Co., which is a reorganization of the Stegeman Motor Car Co., has elected Adam J. Mayer, president; Lynn S. Pease, secretary-treasurer. E. M. McLean, formerly advertising manager of the Four Wheel Drive Auto Co., has been appointed sales manager.

Harrington Speeds Production

TOLEDO, OHIO, Dec. 14—The Harrington Lock Co., manufacturers of the Halco lock, have incorporated for $25,000 and are at present getting production up to full capacity. At present about 1000 Ford locks per week are being manufactured and within sixty days the company will be in a position to manufacture an additional 500 standard locks. About fifty salesmen are now on the road. Bert Harrington is president, Harry L. Erwin, vice-president, E. C. Swearingen, secretary-treasurer, and W. R. Ledbetter, general sales manager.

Reo Men Join Ordnance

LANSING, MICH., Dec. 14—Four veterans in the service of the Reo Motor Car Co. left this week to join the motor truck section of the ordnance department. These are Leon B. Royce, T. W. McDowell, Arthur H. Horton and Bert Vanderwalker. They have been in the Reo company since 1906. Two other employees accompany them, Wilfred Richards and A. K. Spaulding, who will enlist in the same department. All drove to Chicago in Reo cars which are to be delivered to the branch there.

Five New Burd Distributers

ROCKFORD, ILL., Dec. 11—The Burd High Compression Ring Co. has arranged with five companies for the handling of orders previously handled by their Peoria office. They are the Fitch Auto Supply Co., Graham Seltzer Co., Kelly Supply Co., National Electric & Supply Co., all of Peoria, and the Washington Auto & Supply Co., Washington.

Westcott Sportster Now $2,290

Editor Motor World: We recently sent you photograph and particulars pertaining to the new Westcott sportster, and with such information advised you that the price would be $2,190. Due to additional equipment we have added, this price has been changed to $2,290. The body and wheels of the car are to be finished in Liberty blue, and the car carries 32 x 4½ cord tires and front and rear bumper as standard equipment. There is also a walnut cabinet built into the rear of the front seat containing three compartments. The center compartment contains a thermos bottle as standard equipment. The compartments on either side are intended for wraps and personal effects. Each compartment is secured with a Yale lock. Wire wheels are $100 extra.—The Westcott Motor Car Co., Springfield, Ohio.

Some Lexington Prices Raised

CONNERSVILLE, IND., Dec. 15—The Lexington-Howard Co. has increased two models of the "O" series Lexington Minute-Man cars. The Clubster will go from $1,345 to $1,385 and the coupe from $1,510 to $1,545. None of the series "R" Lexington models is affected by the new price. New prices are effective Dec. 20.

Detroit Electric Up $200

DETROIT, Dec. 14—The prices of the Detroit Electric, manufactured by the Anderson Electric Car Co., will advance $200 on Jan. 1, the prices being arranged in the following schedule:

Model	Old Price	New Price
71	$2740	$2940
72	2815	3015
73	2790	2990
74	2840	3040
75	2175	2375
76	2175	2375

Stanley Prices Up $200

NEWTON, MASS., Dec. 13—The Stanley Motor Carriage Co. has increased its prices as follows:

Model	Former Price	New Price
7-Passenger Touring	$2300	$2500
5-Passenger Touring	2200	2400
3-Passenger Roadster	2200	2400

Credit Men Suggest Business Economies

Would Send No More Receipts for Bills Paid by Check—Would Eliminate Needless Detail

NEW YORK, Dec. 17—In order to cooperate to the greatest possible extent in supplying the nation's need of men for war service, the National Association of Credit Men recently made a study of office procedure, with a view to economizing labor there by simplifying processes. As a consequence J. H. Tregoe, secretary and treasurer of the association, was provided with three rules, copies of which he has sent out to all members of the association, with the statement that they were drawn up by the Committee on Commercial War Economy, and the request that they be observed. The rules are:

1. That checks received in the course of merchandising, and unimportant letters and communications, be not acknowledged.
2. That every dispensable and non-productive office or business device or system that can be released without decreasing the real abilities of the business be suspended during the war.
3. That credit departments shall not inquire of other departments in unimportant cases, and that promiscuous and merely general inquiries be discontinued.

Mr. Tregoe, in the letter accompanynig these rules, points out that even small economies of this description in office procedure may not only, in the aggregate, prove of value in conserving the working resources of the nation, but may also be vitally important in enabling the individual business to weather the hard times of the war period.

Reo Distributers Convene

LANSING, MICH., Dec. 12—About 100 distributers for the Reo Motor Car Co. met Monday and Tuesday with the sales department for the purpose of discussing business conditions and interchanging ideas. The freight car situation was the one of most pertinent interest, as the shortage is handicapping both manufacturer and dealer. For this reason, and because of the expectation that Government control on the railroads will tighten up in January, driveaway plans and methods were discussed, and work started on a more definite driveaway system. The shipping schedule for the period from Jan. 1 to Aug. 1, 1918, was also discussed.

Mitchell Heads Maxwell

DETROIT, Dec. 12—Ledyard Mitchell has been elected president of the Maxwell Motor Co., and Walter Flanders, the general manager, has been made chairman of the board of directors to succeed Eugene Myers, retired. There will be no change in the policy of the company.

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Freight Cars and Coal Both Short

Drive-Aways Help Dealers Get Cars and Most Makers Have Coal for Immediate Needs—Other News of Detroit

DETROIT, Dec. 13—There are still two clouds on the horizon of the motor car manufacturer that have become more distinct in the past two weeks. Both are directly due to the freight car situation, one being the difficulty in obtaining cars for the shipment of automobiles to the dealers, combined with the difficulty of making drive-aways as in the past due to the weather. The other is the coal shortage situation.

During the past week the Reo Motor Car Co. has held a meeting of several of its distributers for the purpose of organizing a definite drive-away system to overcome the freight car shortage which it is felt will become more pronounced.

Other manufacturers are conducting drive-aways, Cadillac sending three shifts of three cars each per week to the Chicago distributor.

The coal situation at present has not become critical. The Briscoe Motor Corp. reports that it has supplies on hand sufficient to carry it through the winter, and Dodge, Cadillac, Reo and others have sufficient for immediate needs. It is to be understood, however, in most instances coal is used only for heating purposes, the manufacturers using electric power supplied from a central station.

The Ford Motor Co. is perhaps the hardest pressed of manufacturers. Fred Knudson, representing the Ford interests, handed a check for $25,200 to the fuel commissioner with the request that at least 100 cars of coal be delivered as quickly as possible. The daily consumption of the Ford plant is about 900 tons per day and less than 1100 tons are at present on hand. About 125 cars of coal consigned to the company are tied up in the Columbus, Ohio, yards and sixteen others have been hauled from the Toledo yards by the company's crew sent there for that purpose.

The Anderson Electric Co., manufacturers of the Detroit Electric, report a sufficient supply of coal, and a noticeable increase in business during the past two weeks. This is doubtless explained by the fact that many electrics are being given as Christmas presents. It is understood that the Anderson Electric Co. has secured substantial contracts from the Government calling for work of a particularly accurate nature, which this plant is suited to handle.

Dodge Brothers are at present working on their summer schedule as has been their practice for the past two years. The present output is from 350 to 400 cars per day and it is stated that shipments are being made only to active markets and that the dealers are not allowed to store cars. This has been rendered necessary because of the fact that the company is way behind in its orders and at present has sufficient on hand to keep them busy for a long time. Here, likewise, the big problem is to obtain freight car equipment and drive-aways are taking place as far as Oklahoma and Atlanta, Ga.

The Willys-Overland, Inc., is running on a schedule of 250 cars per day, and much of its plant is engaged on Government work.

The materials market is somewhat better than it has been in the past. However, sheet metal is introducing several problems in body and fender construction. The method at present being used to offset the shortage is the use of stampings instead of forgings wherever the construction permits the change.

It is understood that Chalmers has been assured by its dealers that they will absorb 1000 cars per month during the winter months.

Henry Ford & Son will not be able to meet the order from the English Government for 6000 tractors and 1000 parts on Feb. 1 as scheduled.

The new stone road which forms a connecting link between Detroit and Toledo is completed and will be initiated by the drive-away of the train of thirty Packard army trucks, and after that will be used very extensively by factories driving away cars.

Munitions work in many of the factories here is practically ready and manufacturers are now awaiting Government releases on orders which have been previously given out. One local factory will make motors for the Holt type of tractor for ordnance work.

Several concerns here are figuring on Liberty engine parts contracts which have not yet been drawn into the business which the Government is querying.

The releases on the Class A military truck are being awaited and production will be started in at least three local factories that have been tuning up in preparation of the work.

Shortage of gages in factories engaged in munitions work is handicapping some manufacturers, and on the Class B truck in some instances the gages have been passed from one factory to another.

If the war continues to draw men holding important engineering positions in the factories here to Washington and to different active centers throughout the country such as Dayton in the airplane factories, a shortage in executives is entirely possible. However, happily, the recent campaign for skilled mechanics in all departments of the army has not seriously affected the supply. Many have been taken and many more doubtless will be taken in successive drafts, but most of these were of the draft age, and such would have been taken eventually and represent in a large proportion those engaged in labor.

Under-River Highway to Jersey Is Planned

NEW YORK, Dec. 17—New York and New Jersey may be linked by a great traffic tunnel which it is proposed to build under the Hudson River. Major General Goethals, who recently was placed in charge of road development work in New Jersey, has reported that such a project is entirely possible and more desirable than a bridge, the cost of which would be prohibitive. The plan is to connect Canal Street, New York City, and Twelfth Street, Jersey City, with a tube made up of concrete blocks and having a steel beamed floor between two levels.

The tube would have separate entrances and exits at each end for each level, to provide for fast and slow traffic and eliminate congestion. It is expected that New Jersey will pass legislation favoring the building of the tunnel and that New York will follow suit in the near future.

Make Puncture-Proof Tire

NORTH SCOTTDALE, PA., Dec. 16—Sherman-Stiveson Tire & Rubber Co. has been incorporated, and has purchased the buildings of the F. A. Black Mfg. Co. here. As soon as the necessary repairs are made and machinery installed the new company will manufacture a puncture-proof tire made entirely of fabric and rubber, without wire or inner tube. It is built with a removable tread, and can be retreaded and renovated a number of times.

Salon Exhibitors Given Space

NEW YORK, Dec. 13—At the Automobile Salons of 1918, which will be held at Hotel Astor, New York, Jan. 2 to 9, and Hotel Congress, Chicago, Jan. 28 to Feb. 2, the following makes of cars will be shown: Biddle, Brewster, Cunningham, Daniels, Fageol, Fergus, Lancia, Locomobile, Murray, Mercury, Rolls-Royce, Simplex, White and Wolverine. Accessory exhibits will include Dunlop and Faure tires, Westinghouse Air Spring, Macbeth Lenz, Stentorphone, Fryer-Auster Shield, Laidlaw Cloths and Duratex.

Speed Freight Car Production

WASHINGTON, D. C., Dec. 15—Freight cars are being produced now in greater quantities. One freight car manufacturer in California is turning out a freight car every working hour, and other manufacturers through the country are closely following this record, forecasting a huge freight car supply for both the Allies and the American railroad of France and our national railroad systems.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

John E. Liggett has resigned as president of the Connecticut Brass Corp., West Cheshire, Conn., to become chairman of the board of directors. He will be succeeded by Harry W. Goddard, former vice-president.

John Peterson has been appointed factory manager of the King Motor Car Co., Detroit. He started in the Peerless Motor Car Co., and later became a partner in the Nelson-Brennan-Peterson Co., from which he recently resigned.

William Hoagland, former assistant purchasing agent of the Hayes Mfg. Co., Detroit, has been appointed purchasing agent of the Hayes-Ionia Co., Grand Rapids.

H. E. Hedges, Hartford, has joined the Hartford Buick Co. and will devote attention to the newly acquired Stewart and Scripps-Booth lines. He was formerly associated with F. L. Caulkins of Middletown, Chalmers and Buick distributer in Middlesex County and more recently conducted the Arrigoni Garage in Middletown.

Jay C. Brandimore, formerly with the Reo Motor Car Co., has been appointed special factory representative of the Mitchell Motors Co., Inc., Racine, Wis.

Thomas Zimmerman has joined the Standard Parts Co., and will have charge of engineering in connection with axles. He was formerly employed by the United States Light & Heat Corp., Niagara Falls, and before this was chief engineer of the Standard Roller Bearing Co.

Robert T. Walsh has resigned from the Robert Smith Co. of Lansing. He was formerly advertising manager of the Briscoe Motors Corp. and of the Maxwell Motor Co. He has not announced any future connection.

J. I. Handley has been made manager for the central district of the Willys-Overland, Inc., and will have his headquarters in Toledo. He was formerly with the Mutual Motors Co. of Jackson, Mich., manufacturers of the Marion-Handley car, and before that with the old Marion company of Indianapolis.

Allen Loomus, formerly research engineer of the General Engineering Co., manufacturers of the Doble steam car, has joined the engineering force at the Dayton airplane factory. Loomus was appointed to this position at the request of Major J. G. Vincent of the Aircraft Production Board.

George Lane has been made general manager of the Parker Rust Proof Co. He was formerly sales manager and takes the place of Wyman C. Parker, who is devoting his attention to business in the East.

J. R. Brooking has been appointed Western manager, with headquarters in Spokane, for the Geo. D. Bailey Co., manufacturers of the Bailey Ball Thrust and Rayfield Coupling. He was formerly with the Willys-Overland Co., Chanslor & Lyon and the Studebaker Corp.

W. B. Cole, formerly salesman at the San Francisco branch of the Fisk Rubber Co., has been placed in charge of the Seattle branch for that company.

L. A. Sommer, who for over 3 years has been general factory manager of the Allen Motor Co., has been recently elected to the office of assistant general manager.

C. L. Allen has resigned his position with the Allen Motor Co., going with the Chevrolet Motor Co. of New York City.

Charles S. Ash, until recently chief engineer and inspector of the Wire Wheel Corp. of America, has been appointed to a similar position with the National Wire Wheel Works, Inc., Geneva, N. Y. He will have complete charge of the engineering and manufacturing work of the company.

Daniel G. Bechteim, Marshaltown, Iowa, formerly advertising manager of the Marshaltown Times-Republican, is advertising manager of the D. and S. Motor Co., Des Moines and Cedar Rapids.

Peter Weinschenk is manager of the Boomhower Auto Supply Co., Marshall, Mich.

E. D. Greenmayer is commissioned major in the quartermaster's department to manage a truck factory in France, leaving immediately. He was formerly with the Briscoe Motor Corp. and at one time was superintendent of the Lewis Spring & Axle Co., Chelsea, Mich.

William Nuttall is foreman of the assembly track at the Harroun Motors Corp. He was formerly with the King Motor Car Co.

Jotham Allen is president of the Four-Drive Tractor Co., elected at a recent meeting. J. C. Jenkins is vice-president and sales manager; Albin Johnson is secretary-treasurer, and H. E. Frederick is director, succeeding E. J. Jenkins.

B. F. Durham is service manager of the Harroun Motors Corp.

To Investigate New Power

WASHINGTON, D. C., Dec. 15—A special rule for consideration immediately after the passing of the pending post office appropriation measure of a bill authorizing investigation of the mysterious "Garabed" discovery was approved yesterday by the House rules committee. "Garabed" is the power that it is claimed will drive anything from an airplane to a battleship without fuel. The bill provides for protection of the rights of its discoverer. Features which caused President Wilson to veto a similar bill last session have been eliminated.

Liberty Airplane Engine Satisfactory

Tests of First Machine-Made Engine Show It Works as Well as Hand-Made Model

WASHINGTON, D. C., Dec. 15—Tests of the first machine-made Liberty airplane engine show that it functions as satisfactorily as the first hand-made motors. Plants throughout the country are now starting production and expect soon to be operating at maximum. One plant will have a capacity of several thousand completed engines a month.

With all plants working on schedule the production of engines will not only allow the United States its complete needs but will also permit the Government to supply many thousands of the engines to various of the allied powers that have asked for them to supplement their own output.

Meanwhile the training of aviators and observers and thousands of mechanics is moving forward steadily both at home and abroad. The capacity for producing aviators in this country has expanded to the point that the most serious problem now is to secure the right kind of students for flying.

American army aviators are training on the firing lines of France in numbers that cannot be mentioned but which are in accord with earlier schedules. The ground schools at home are turning out every week a large class ready for preliminary flying work. Probably a fifth of the men admitted to the ground schools fail to complete the vigorous course of construction required.

Jones Capital Increased $1,000,000

WICHITA, KAN., Dec. 6—The Jones Motor Car Co. has increased its capital from $500,000 to $1,500,000.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	45	50
*J. I. Case T. M. Co. pfd.	..	78
Chalmers Motor Co. com.	2	4
Chalmers Motor Co. pfd.	..	50
*Chandler Motor Co.	61	62
Chevrolet Motor Co.	61	64
*Fisher Body Corp. com.	20	34
*Fisher Body Corp. pfd.	75	80
Fisk Rubber Co. com.	..	45
Fisk Rubber Co. 1st pfd.	98	103
Fisk Rubber Co. 2d pfd.	60	70
Firestone Tire & Rubber Co. com.	95	99
Firestone Tire & Rubber Co. pfd.	96	100
*General Motors Co. com.	85½	87
*General Motors Co. pfd.	73	75
*B. F. Goodrich Co. com.	34	35½
*B. F. Goodrich Co. pfd.	94	97
Goodyear Tire & Rubber Co. com.	146	150
Goodyear Tire & Rubber Co. pfd.	96	97
Grant Motor Car Corp.	2	3
Hupp Motor Car Corp. com.	1¾	2
Hupp Motor Car Corp. pfd.	74	79
International Motor Co. com.	8	13
International Motor Co. 1st pfd.	30	50
International Motor Co. 2d pfd.	15	25
*Kelly-Springfield Tire Co. com.	37	39
*Kelly-Springf'ld Tire Co. 1st pfd.	70	80
*Lee Rubber & Tire Corp.	12	13
*Maxwell Motor Co., Inc., com.	23	25
*Maxwell Motor Co., Inc., 1st pfd.	51	54
*Maxwell Motor Co., Inc., 2d pfd.	20	21
Miller Rubber Co. com.	130	140
Miller Rubber Co. pfd.	95	98
Packard Motor Car Co. com.	110	115
Packard Motor Car Co. pfd.	92	96
Paige-Detroit Motor Car Co.	11	13
Peerless Truck & Motor Corp.	9	13
Portage Rubber Co. com.	109	111
Regal Motor Car Co. pfd.	10	20
†Reo Motor Car Co.	15	17
*Saxon Motor Car Corp.	5	7
Springfield Body Corp. com.	..	..
Springfield Body Corp. pfd.	..	..
Standard Motor Construction Co.	7½	8½
Standard Parts Co.	..	75
*Stewart-Warner Speed. Corp.	43	45
*Studebaker Corp. com.	41½	42½
*Studebaker Corp. pfd.	..	96
Swinehart Tire & Rubber Co.	16	26
United Motors Corp.	14¾	15¼
*U. S. Rubber Co. com.	47	49
*U. S. Rubber Co. pfd.	94	95
*White Motor Co.	34	35
*Willys-Overland Co. com.	17½	18½
*Willys-Overland Co. pfd.	76	71

*At close Dec. 15, 1917. Listed New York Stock Exchange. †Par value $10.

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Gasoline Reduced 4 Cents in England

Motorists Turn to Coal Gas—Government Will Restrict Its Use

LONDON, ENGLAND, Dec. 1—The price of gasoline in England has been reduced 4 cents per gallon. With all respect to the oil companies this is simply a fictitious reduction because the companies raised the price 17 cents per gallon 2 months ago and consequently are now in good condition to bow to public opinion and reduce the price.

On Nov. 1 when the new regulations went into force restricting the use of gasoline, motorists turned their attention to coal gas and to-day there is a tremendous movement in that direction. All makers of gas bags, which are carried on the tops of cars, and compressed gas cylinders which are carried on the running boards or other places are flooded with orders, some makers having 12 months orders on hand.

Naturally the Government authorities are more or less concerned because of this diversion of labor from what is known as more useful work, and it is confidently expected that within a few days restrictions may be introduced preventing the use of coal gas except by those who are entitled to use gasoline. This is not so unreasonable as it might appear, for at a time when all householders are asked to conserve gas supplies and are only supplied with coal on a rationed basis, it is clearly wrong for people to be able to use unlimited supplies of coal gas in their motor cars.

Overland Revises Selling Plan

TOLEDO, OHIO, Dec. 15—The Willys-Overland, Inc., has developed a new sales department organization to bring the factory into closer touch with the dealer organization. Under the new system, the country is divided into seven divisions, each of which is under the direct supervision of a resident division manager who has full power to act for the company. Two new executives have been brought into the organization for this plan, J. I. Handley, manager of the east central division, formerly of the Mutual Motors Co. of Jackson, and A. C. Barber, manager of the west central division, formerly with the Moline Plow Co.

The following are the managers, with their divisions and headquarters:

Manager	Division	Headquarters
J. I. Handley	East Central	Toledo, O.
A. C. Barber	West Central	Moline, Ill.
William L. Colt	Eastern	New York City
George H. Cox	Mid-Western	Kansas City
F. C. Riggs	Western	San Francisco
E. N. Culver	Southern	Atlanta, Ga.
C. M. Leroux	Northwestern	Minneapolis

New Jersey Wants Cash

NEWARK, N. J., Dec. 18—The New Jersey Automobile Trade Association has come out in favor of doing business on a cash basis. Secretary C. E. Holgate is sending a letter to every member and also a card in three colors calling attention to the decision of the association and urging that the card be hung in every dealer's place of business. The card has the following resolution: "Resolved that we recommend to our members that beginning January 1, 1918, they discontinue the practice of carrying open accounts in all departments of their business."

Firestone Sales $61,587,219

AKRON, Dec. 17—Total sales of the Firestone Tire & Rubber Co. amount to $61,587,219, a gain of 71 per cent or $25,585,499 over the previous year. These figures are made public in the annual statement of the company, which shows a present surplus of $3,316,195 after the payment of dividends. Several thousand stockholders gathered in Akron Dec. 15 to accept the report.

Olds Adds Sportster Model

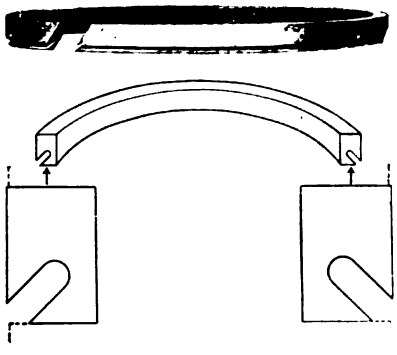
LANSING, Dec. 18—The Olds Motor Works has just brought out a new Sportster model which will be exhibited at the New York show. It is to sell for $1,550 and is mounted on the eight-cylinder chassis.

$2,000,000 Order for Bethlehem Motors

ALLENTOWN, PA., Dec. 13—The Bethlehem Motors Corp. has received a government contract for more than $2,000,000 of Class B three-ton Liberty trucks to be delivered during the first half of 1918. In all probability, the amount of the contract will be greatly increased after production is started.

New McQuay-Norris Ring

ST. LOUIS, Dec. 18—The McQuay-Norris Mfg. Co., manufacturer of Leak-Proof piston rings, is putting on the market a special type of ring designed for the correction of oil troubles exclusively. It will be styled Superoyl and will be made in all sizes. It is intended to be installed in the top groove of each piston. It is a concentric ring with an oil reservoir cut into it at an angle of 45 degrees from the intersection of the cylinder wall and the lower groove bearing face of the ring, thus providing a scraping edge.



The new McQuay-Norris Superoyl ring is concentric, the lower illustration showing the location of the oil reservoir

Coe-Stapley Adds New Products; Reorganizes

New Company, Headed by Teter, Acquires Peteler Jack—New Pump and Signal

NEW YORK, Dec. 18—The Coe-Stapley Mfg. Co., with plants in Brooklyn, N. Y., and Bridgeport, Conn., has been reorganized under the style Coe-Stapley Mfg. Corp. and has acquired the manufacturing and distributing rights for the Peteler jack; the company will also take up the production of a new high-quality hand-operated air pump for the jobbing trade and car manufacturers and also a hand-operated mechanical signal for trucks. All these products will be marketed through jobbers and also to manufacturers of cars and trucks direct.

The new company is capitalized at $350,000 and is headed by Walter C. Teter, 111 Broadway, New York. Associated with him are Vice-President Buell Hollister and Secretary-Treasurer E. V. Shoemaker.

Republic Trucks for Grasser

DETROIT, Dec. 15—The Grasser Motor Car Co., Republic distributer, has recently signed a contract with the Republic Motor Truck Co. of Alma, Mich., for 1000 trucks. Of these 500 are for the Detroit territory and 500 for the Toledo territory. Recently fifty trucks were driven overland from Alma to Detroit.

305,766 Cars in Pennsylvania

HARRISBURG, PA., Dec. 12—Figures issued by the State Highway Department show that 305,766 pneumatic tired motor vehicles were licensed in Pennsylvania since Jan. 1. This breaks all previous records. In addition there were licensed 19,009 solid tired vehicles, 24,563 motorcycles, 2,823 tractors and 853 trailers, in addition to 66,492 paid drivers.

Wire Wheel License Hill-Smith

BUFFALO, Dec. 16—The Wire Wheel Corp. of America has granted a license to the Hill-Smith Metal Goods Co., Boston, to manufacture and sell the "Minute" demountable wheels for Ford cars.

Scrap Metal Prices

NEW YORK, Dec. 12—Following are the prices paid by New York dealers for scrap metal during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible	22.00
Copper, heavy and wire	21.00
Copper, light and bottoms	19.00 to 19.50
Brass, heavy	14.25 to 14.50
Brass, light	10.50 to 10.75
Heavy machine composition	20.00 to 21.00
No. 1 yellow brass turnings	14.00 to 14.25
No. 1 red brass or composition turnings	17.50
Lead, heavy	5.50
Lead, tea	4.00
Zinc	5.75

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1295	†1295	1295	....	1920	....	....
6-60	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN-SIX																	
A	6-3½x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Conn	Zenith	Wstns	DP	3	120	33x4	SS	....	1495	....	....	2195	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	34x4	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	23.4	Remy	Rafid	Remy	DP	3	120	34x4	SS	1295	1295	....	....	....	....	1545
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	†1635	1635	....	2400	....	1935
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BELL																	
17	4-3½x5	19.6	A.Kent	Zenith	Dyneto	D	3	112	31x4		....	895	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	3600	....	†3650	....	4100	†4000	....
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1385	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7300	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3⅛x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	....	....	....
E44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1465
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 {135	35x5 34x4½	SS	2805	....	2800	....	3650	4145	....
CASE																	
T17	4-3½x6	21.0	Conn	Rafid	A-Lite	C	3	120	34x4	SS	†1190	....	1190	....	....	....	....
U	6-3½x5½	29.4	Wstns	Rafid	Wstns	D	3	125	35x4½	SS	†1875	....	1875	....	2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wstns	DP	3	{117 {122	32x4 34x4	SS	1365	1365	1450	....	1850	2025	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	G & D	D	3	123	34x4	SS	1595	....	1595	2195	2295	2395	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	620	620	....	....	1060	....	....
FA-5																	
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	985	985	....	....	1475	....	....
D	8-3½x4	36.45	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE															{2695		
860	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1995	....	1995	2495	{2795	....	....
COLUMBIA																	
	6-3½x4½	25.3	A.Kent	Stmbg	W.Lard	DP	3	115	32x4	....	†1495	1395	....	....	1995	....	....
COMET																	
6-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114½	32x3½	SS	†995	{935 995	....	1195	1275	....	....
DANIELS																	
B	8-3½x5	33.8	Wstns	Zenith	Wstns	D	3	127	34x4½	QDR	†3100	3100	3100	....	....	....	....
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1785	1785	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D		119	33x4	SS	‡1395	1395	†1425	....	1875	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
L835	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1295	....	....
DOBLE	2-5 x4	....	Own	Dobl Stmb	Wagner			135	35x5	....	....	....	2500	....	..	..	

Model	Motor	S. A. E.	Ignition	Carburetor	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MADISON																	
4	6-3½x5½	23.4	Remy	Rafid	Remy	DD	3	124 115	34x4 34x4	SS	†1495	1495	1495	1095	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795		....	1095	....	....	865
B	6-3½x5½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	...	1375	1375	....	....
MARION HANDLEY																	
6-60	6-3½x5½	29.4	Wstns	Stmbg	Wstns	DD	3	125	35x4½	SS	†1850	....	1850	....	2500	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	4950	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Stmns	C	3	109	30x3½	C	‡745	745	....	1095	1095	1095	955
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wstns	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Raceabout	3250	....	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wstns	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300
C-42	6-3½x5	29.4	Conn	Stmbg	Wstns	C	3	127	34x4	SS	‡1490	1510	1525	2125	2275	2850	300
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	.	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	110	32x3½	SS	995	995	....	....	....	....	....
M-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	117	33x4	SS	†1195	1195	....	....	...	....	...
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	†635	....	....	965	....	...
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	..	1095	...	....	....		...
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½			1195		....	....	...	...
6-45	6-3½x4½	25.3	Delco	Rafid	Delco	DD	3	125	34x4	SS	‡1685	...	1685	....	....	...	...
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2450	2450	...	...
MURRAY																	
1918	8-3½x5	33.8	Dixie	Zenith	Wstns	DP	3	128	34x4½		2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-684	6-3½x5	25.4	Delco	Marvel	Delco	P	3	131	34x4	SS	1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wstns	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.7	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	‡990	990	....	{1150 1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	...	....	....	....
37	6-2½x4½	18.9	Delco	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	27	Conn	Carter	A-Lite	D	3	114	32x3½	....	†965	965	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	‡915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	{104 {106	31x4	C	780	795	†840	....	1240	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	...	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.6	Bosch	Zenith	O-M	OM	6	136	35x5	SS	‡3950	‡3950	3950	....	...	5000	....
PACKARD																	
3-35								{126					4100			5650	
3-38	12-3 x5	48.2	Delco	Own	Bijur	DD	3	138	35x5	QD	..	3700	3700	5050	....	5250	...

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DODGE BROTHERS																		
	4-3½x4½	24	Delco	Stewart	N.R.	D	3	114	32x3½	SS	885	885	....	1350	1350	....	....
DORRIS																		
I-C-6	6-4 x5	38.4	Bosch	Stmbg	Wstns	D	3	130	36x4½	SS	....	....	2735	3225	3250	4150	....
DORT																		
9	4-3½x5	16.9	Conn	Carter	Wstns	C	3	105	30x3½	QD	‡725	725	....	....	1095	....	945
ELCAR																		
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....
ELGIN																		
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	1645	....	....	....
EMPIRE																		
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.4	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1375	1345	....	1685	....	....
FIAT																		
55	4-5½x6½	42	Bosch	Zenith	Wstns	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																		
T	4-3½x4	22.5	Own	{Holly Kngstn	....	D	2	100	30x3½	rC	345	360	....	560	695	....	....
FRANKLIN																		
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4 {33x4½	SS	2000	2050	....	2350	2950	3300	....
GLIDE																		
6-40	6-3½x5	23.4	Wstns	Rafid	Wstns	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																		
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡875	875	....	....	....	....	....
HAL TWELVE																		
	12-3½x5	39.7	....	Stmbg	Wstns	DP	3	135	34x4½	SS	2900	2900	2900	....	3500	4500	....
HALLADAY																		
S	6-3 x5	21.6	A-Lite	Stmbg	Wstns	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wstns	Stmbg	Wstns	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	785	....	....	....	....	....
HARVARD	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	†965	....	....	....	....	....	....
HOWARD																		
	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	....	....	....	....	....	....
HAYNES																		
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2200	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2300	....	....
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2700	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2800	....	....
HOLLIER																		
196	6-3 x4½	21.6	Remy	Stewart	Aplco	C	3	116	32x3½	SS	....	1065	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Aplco	C	3	116	34x4	SS.	†1285	1285	....	....	....	....	....
HUDSON																		
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	†1750	1650	1950	2175	2925	....
HUPMOBILE																		
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
	4-3½x5½	22.5	A.Kent	Zenith	Wstns	D	3	119	34x4	SS	1385	1385	....	....	....	....	....
NU	4-3½x5½	22.5	A.Kent	Zenith	Wstns	D	3	134	35x4½	SS	....	....	1540	....	....	....	....
INTER-STATE																		
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	875	925	†950	....	....	....	....
JACKSON																		
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	....	....	1675	1675	....	2550	....	....
JORDAN																		
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2650	3300	....
KING																		
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	‡1585	†1700	1650	....	2300	....	....
KISSEL																		
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1295	1295	1335	1735	1735	....	1735
Double-6	12-2½x5	39.7	Delco	Stmbg	Own	DD	3	...	34x4½	....	1335	....	2250	....	2650	....	2650
KLINE																		
6-38-G	6-3½x4½	25.3	Wstns	Rafid	Wstns	DP	3	120	34x4	SS	1395	1395	†1395	....	....	....	....
LEXINGTON																		
6-O	6-3½x4½	25.3	Conn	Rafid	Wstns	DD	3	116	32x4	QD	....	1345	....	....	1510	....	....
6-R	6-3½x4½	25.4	Conn	Rafid	Wstns	P	3	122	34x4	QD	....	....	1585	....	1785	....	....
LIBERTY																		
6	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																		
38 Series II	6-4½x5	43.3	Berling	Ball	Wstns	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6300	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wstns	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																		
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisma	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																		
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....

PAIGE																		
6-39	6-3½x5	33.4	Remy	Stmbg	G & D	D	3	117	33x4	SS	1330	1330	....	....	1925	....	....
6-55	6-3½x5½	36.4	Remy	Rafid	Remy	D	3	127	33x4½	SS	....	....	1775	2650	....	3250	....
PAN-AMERICAN																		
	6-3½x5	33.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1500	....	....	....	....	....
PARTIN PALMER																		
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
PATERSON																		
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	33x4	C	†1295	1365	1295	....	....	....	....
PATHFINDER																		
3-A, B, C	12-2½x5	30.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	3250	3250	3250	....	....	....	....
PEERLESS																		
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3650	....
PIERCE-ARROW																		
38-C-4	6-4 x5½	38.4	Bosch	Own	Wstns	C	4	134	34x4½	QD	4800	4800	†4800	5000	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wstns	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wstns	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																		
6-45	6-3½x5	33.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																		
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	126½	35x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																		
4-36	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	106	32x3½	..	825	825	‡825	....	....	....	....
REGAL																		
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	106	30x3½	QD	....	795	....	....	....	....	....
REO																		
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	†1395	1395	....	....	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	‡985	985	....	....	....	....	....
ROAMER																		
R.A.	6-3½x5	33.4	Bosch	Stmbg	Bijur	DP	3	127	34x4	SS	2150	1850	....	....	....	....	....
ROSS																		
	8-3½x5	33.8	....	....	W.Lard	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																		
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	395	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	985	985	....	1395	....	....	....
SAYERS	6-3½x4½	25.3	Delco	....	Delco	P	3	....	32x4	....	....	1295	....	....	....	....	....
SCRIPPS-BOOTH																		
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1435	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	1250	....	....	....	....	....	....
SIMPLEX																		
5	6-4½x6½	45.9	Eisma	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																		
17	6-4 x5½	38.4	Bosch	Rafid	Wstns	DD	4	130	35x5	QD	3300	†3800	3300	....	....	4750	....
STANDARD																		
8	8-3½x5	33.8	Splitdf	Zenith	Aplco	D	3	127	35x4½	....	†1950	....	2000	....	2500	3500	....
STANLEY																		
Steamer	2-4 x5	....	....	....	....	..	.	130	35x4½	SS	‡2200	2200	2200	....	....	....	....
STEARNS																		
SK14	4-3½x5½	22.5	Remy	Schebler	Wstns	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wstns	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																		
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	117½	32x4	....	‡1485	1485	....	....	1965	....	....
STUDEBAKER																		
SF-4-40	4-3½x5	24.2	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡1035	....	1050	....	....	....	1250
ED-6-50	6-3½x5	36.4	Remy	Schebler	Wagner	C	3	122	35x4½	SS	1335	‡1335	1385	1850	1850	2750	1565
STUTZ																		
S	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	†2650	*2750	....	....	....	....
S.Bearcat	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	....	....	....	....	....	....
SUN																		
17	6-3½x5	33.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
VELIE																		
88	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1585	....	....
30	6-3½x5½	30.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																		
8-18	6-3½x5½	30.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1880	1940	1940	2790	2790	....	....
WHITE																		
16-Valve	4-4½x5½	33.9	.....	Own	L.N.	P	4	{124½ {137½	35x5 35x5	U	†4600	....	4500	5650	5650	5800	....
WILLYS-KNIGHT																		
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1525	2175	2225	2325	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	135	34x4½	SS	†2550	....	2000	....	2700	2800	....
WILLYS																		
89-6	6-3½x5½	30.4	Conn	Titan	A-Lite	C	3	120	33x4½	SS	†1365	....	1365	....	2045	....	....
WINTON																		
33	6-3½x5½	38.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2950	2950	3000	3965	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4800	4750	4750	....
WOODS'																		
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag		124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡2-passenger. t-town car.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Titsn" Tillottson, "B & Ball" Ball & Ball, "Atsr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Hartford Plans a Show

HARTFORD, CONN., DEC. 17—Hartford motor car dealers desire an annual show in 1918 at the state armory as in seasons past. The Hartford Automobile Dealers' Association, Inc., has voted to hold such an exhibition and arrangements are being made to secure the armory which is a state building.

The show will probably take place the week of Washington's birthday as the dealers have always been partial to this particular time. Ben F. Smith of the Capitol City Auto Co. is to manage the show.

Call Off Aero Show

NEW YORK, Dec. 17—The aircraft show, which was to have been held in Grand Central Palace Feb. 16-23, has been called off. This action has been taken with a view to assisting the Government by eliminating any further congestion of railroads.

Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

Quincy, Ill.	Quincy Motor Car Dealers, Armory. L. B. Bartlett, Mgr.	Dec. 26-29
New York, N. Y.	Salon, Automobile Salon, Inc. Astor Ballroom. John R. Eustis, Mgr.	Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-12
Kansas City, Mo.	Third Annual Tractor Show	Jan. 11-16
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wanamaker's Garage.	Jan. 12-19
Rochester, N. Y.	Tenth Annual, Exposition Park C. A. Simmons, Mgr.	Jan. 14-19
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle Mgr.	Jan. 16-25
Des Moines, Ia.	Ninth Annual Passenger Car and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Jan. 18-24
New York, N. Y.	Motor Boat Show, Grand Central Palace. National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
York, Pa.	York Auto Dealers' Assn., Queen St. Tabernacle. T. F. Pfeiffer. Sec.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Oklahoma City, Ok.	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn Armory. Hugh B. Andrews, Mgr	Jan. 21-26
Baltimore, Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory	Jan. 22-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland. Mgr.	February
Minneapolis, Minn.	Minneapolis Auto. Trade Assn Walter B. Wilmot, Mgr.	Feb. 3-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Track Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn. E. E. Peake, Mgr.	Feb. 9-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
San Francisco, Cal.	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome.	Feb. 18-23
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., Twenty-third Regiment Armory. I. C. Kirkham, Treas.	Feb. 23-Mar. 1
	Commercial Vehicles.	Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn., Auditorium.	March
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino. B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clark G. Powell, Mgr.	Feb. 28-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n. Coliseum.	Mar. 6-9
Great Falls, Mont.	Montana Automobile Distributers Assn.	Mar. 16-20
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13

Conventions

New York	Nat'l Auto Dealers' Assn., Meeting board of directors and vice-presidents from Eastern States.	Jan. 7-8
New York	Tenth Annual Dinner, Motor & Accessory Mnfrs.' Assn., Waldorf-Astoria, 7:30 p.m.	Jan. 9
Montreal, Can.	Convention of all men Interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago	Annual Convention, Garage Owners' Assn of Ill., Green Room, Congress Hotel.	Jan. 29-31
New York	Convention, National Assn. of Auto Accessory Jobbers. Hotel Astor.	Feb. 11-16

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STEPHENS

Salient Six

Equilibrium

BALANCE of weight and correct apportionment of power to load is worked out with as fine detail in the Stephens car as it is in the modern airplane.

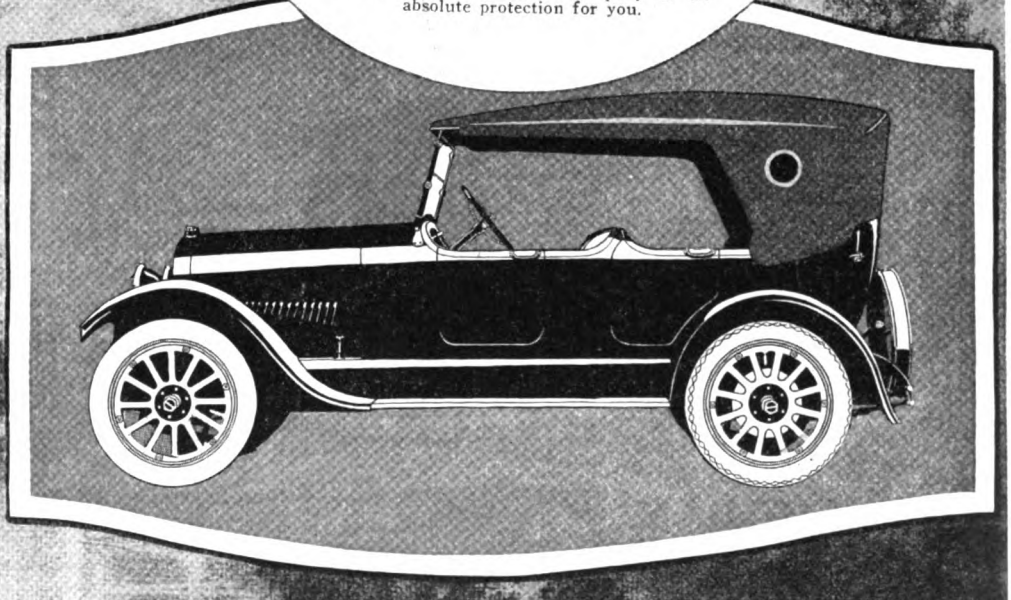
The Stephens "floats evenly" because its weight is scientifically distributed on its springs. It has ample power for every emergency because its small engine is highly efficient, the perfected overhead-valve engine which burns ALL the gasoline. Bore 3¼ inches; stroke 4½ inches. Fourteen to eighteen miles on a gallon of gasoline with an actual fifty-seven horsepower.

Three-Passenger Roadster	$1485
Four-Passenger Touring	$1550
Five-Passenger Touring	$1485
Five-Passenger Victoria	$1660
Five-Passenger Touring Sedan	$1985

Stephens Motor Branch
of Moline Plow Co., *Moline, Illinois*

Factory: Freeport, Illinois

DEALERS: This is no time for you to associate yourself with an experimental organization. The name Moline Plow Company is an absolute protection for you.



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Economy is a war time necessity. But be sure you practice *sensible* economy. Don't squeeze all the joy out of life. Good health and efficiency demand mind and body building recreation. *Motor of course.* Keep fit. But don't *squander* fuel money. Equip your car with a

New Stromberg Carburetor

It lays undisputable claim to the World's greatest economy records. It produces —on *any* car, *old* or *new*— most miles per gallon. It conserves gasoline. Enables you to motor with a "clear conscience" to employ *tangible* patriotism—to save and serve in a way that really counts—*without* stinting.

Investigate. Send at once for unbeatable economy records—and free literature that explains how *you* can increase mileage and reduce fuel costs. State name, model and year of your car.

Stromberg Motor Devices Co.
64 E. 25th Street, Chicago
Dept. 1528

New STROMBERG Does it!
CARBURETOR

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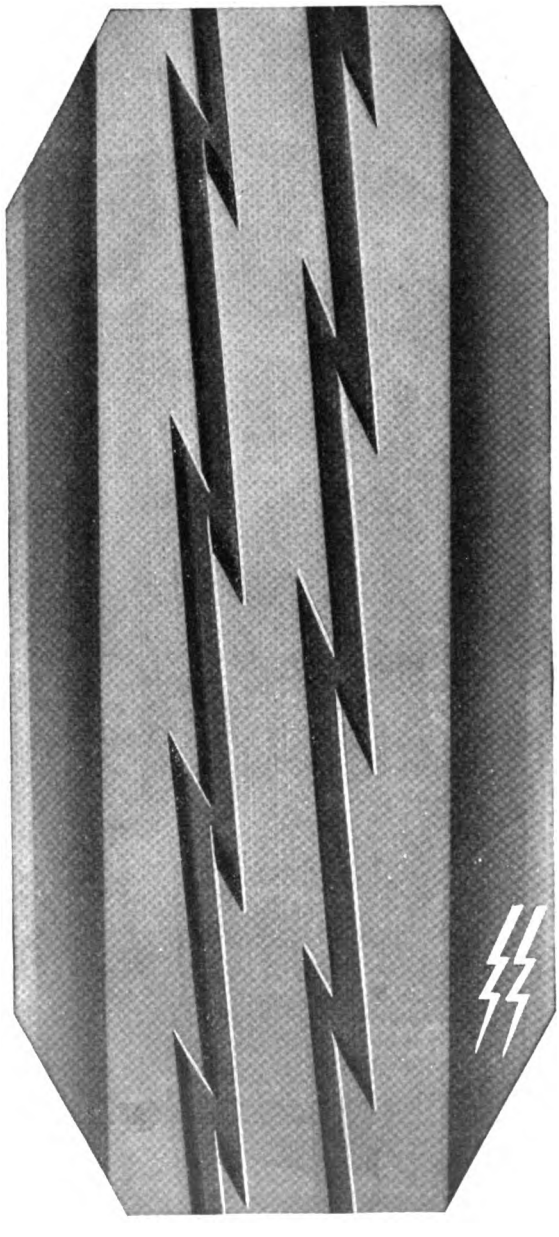
CARLISLE CORD: A SURPRISING NEW CREATION IN TIRES

Just one strand of the cotton rope in this sensational new tire supports 235 pounds.

Ingenious new machines form a carcass of this sturdy rope. Not at a single place is the rope cut or broken.

The performance of a casing of the new type is astonishing. It delivers an average of 40 to 80 per cent more mileage than other tires; easily withstands shocks that would be the death of other pneumatics; even stands up under the severe abuse of insufficient inflation; and its resilience is a great surprise.

CARLISLE CORD TIRES



No tread stock has ever been found that would last one half as long as the carcass of this amazing tire. Retreading is by no means discouraged—it is advocated by the makers.

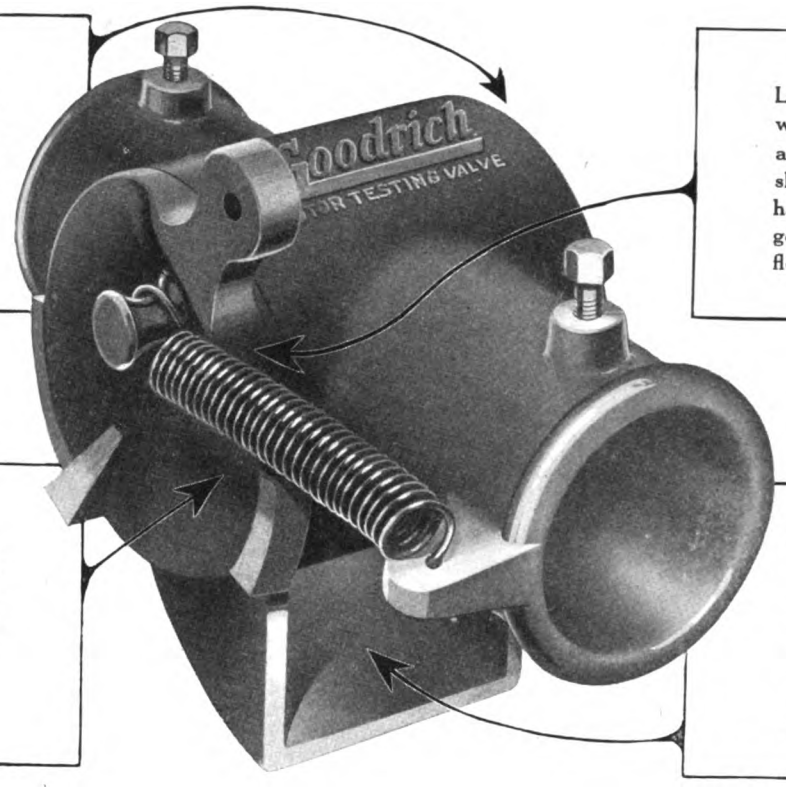
This innovation in tires is a choice opportunity for dealers. Address the makers now if interested. The first 1000 dealers appointed will of course have first call on factory production.

CARLISLE CORD TIRE CO., 250 WEST 54th STREET, NEW YORK CITY. FACTORY, ANDOVER, MASS.

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Goodrich MOTOR TESTING VALVE

(Replacing old style cutout)



Self cleaning. Valve when operated to open scrapes away all carbon deposits, allowing same to pass out freely.

Leak proof. Valve when opened automatically shuts off all exhaust so that none goes through muffler.

Spring which operates shutter is not affected by heat and holds its tension at all times.

Bell-shaped mouth allows ample expansion of gases, eliminating back pressure and greatly intensifying sound of explosions.

HEAR YOUR MOTOR TALK

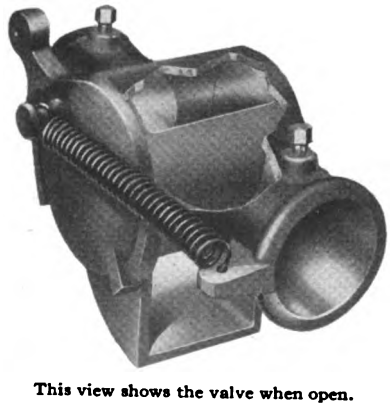
You cannot tell when your motor is "hittin' on all six"—or all four—unless your car is equipped with a Goodrich Motor Testing Valve.

Before you leave your garage step on the pedal and try out your motor. In an instant the Goodrich Valve will speak—and tell you if all cylinders are running properly. A step in time—on the pedal of the Goodrich Valve—saves nine—or many more minutes of work and immediately foreshadows any trouble in your cylinders.

It produces a loud, clear, sharp note, every pulsation of the motor being distinctly heard. Its bell-shaped mouth emits the full flow of exhaust gas. None escapes through the muffler. All back pressure is eliminated.

One of the many advantages in the design of the Goodrich Valve is the location of the spring which controls the shutter, being sufficiently removed from the heat, allowing it to hold its full tension at all times. When the valve is closed there is no obstruction in the exhaust pipe. It requires no adjustments—and is self-cleaning.

Finished with a specially prepared paint, preventing corrosion and rust. Sold complete with pedal and chain—ready to be attached.



This view shows the valve when open.

PRICES:

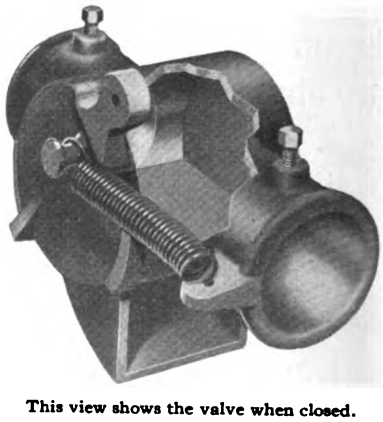
For Ford cars and all 1 ⅛ inch sizes . . . $3.00
1 ⅝ inch to 2 ⅜ inch 3.75
2 ½ inch to 3 inch 4.25

Made in ⅛ inch sizes.

DEALERS: Write today for liberal discounts on Goodrich products. Backed up by national advertising campaign—every one a sure-fire profit maker and a fast seller.

GOODRICH-LENHART MFG. CO.

418 Widener Bldg., Philadelphia



This view shows the valve when closed.

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NOW JOIN *the* ARMY *of satisfied*

MICHELIN TIRE DEALERS



Michelin dealers are prosperous dealers. Their bank accounts grow steadily bigger.

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Talks to the

Number 5

WE CANNOT SAY it too strongly, Mr. Dealer:

You owe it to yourself to know about Michelin's 1918 proposition.

Your past year may have been a good one. But after you study this new Michelin proposition you'll agree that through it you can make next year still better.

It's one of the best propositions ever offered the tire trade.

Michelin's well-known reputation is your guarantee that this statement does not exaggerate the truth.

So, if you haven't already written, don't put it off any longer, but write today for particulars.

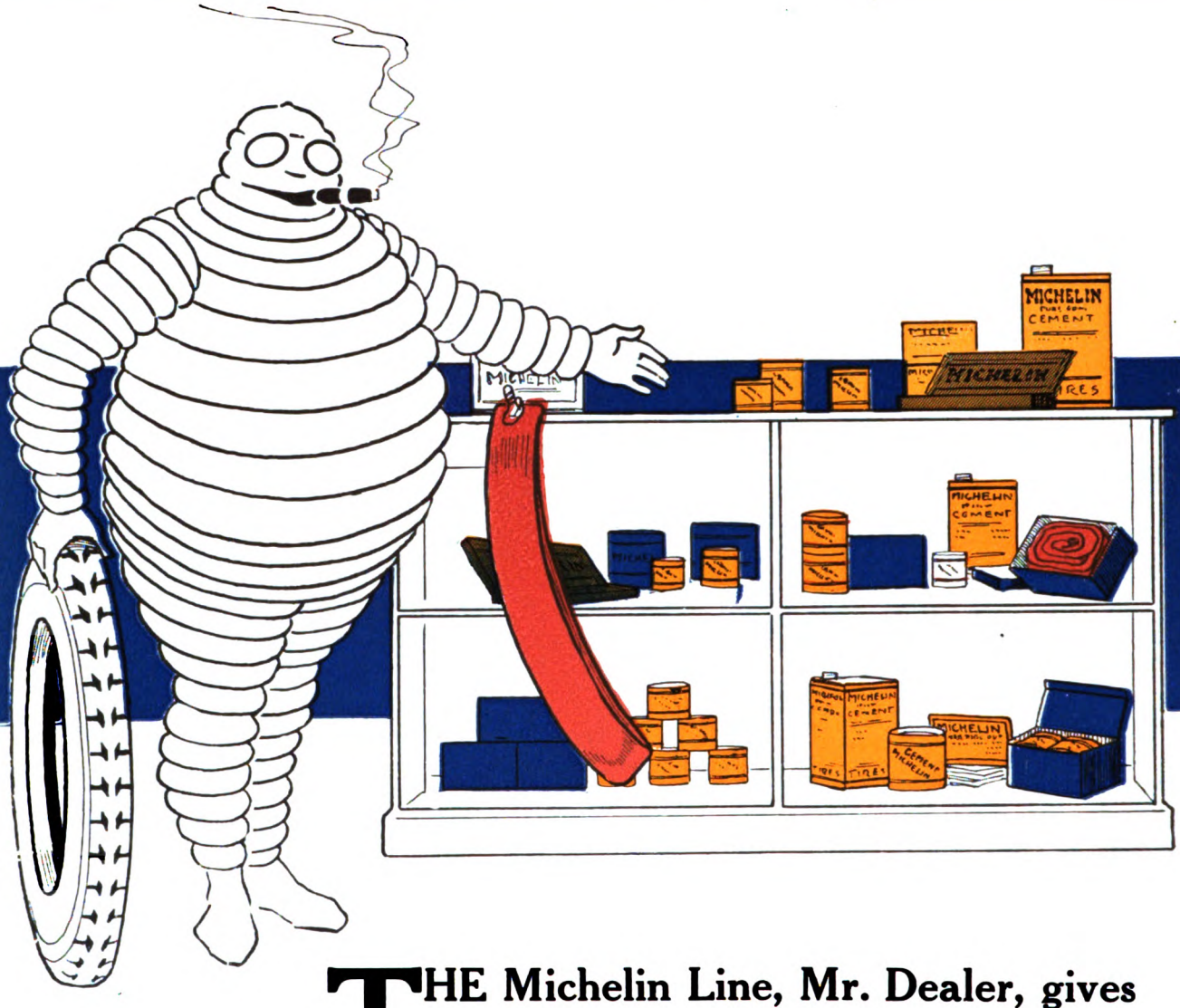
Michelin Tire Company
Milltown, N. J.

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TIRE TRADE



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THE Michelin Line, Mr. Dealer, gives you an advantage over competitors in every department of the tire business.

The Michelin Red Inner Tube is, as you know, recognized the world over, as the best.

Michelin Casings are just as good as this unequalled tube.

And so are Michelin Accessories—Michelin Mastic (the plastic compound for mending cuts), Michelin Cement, Michelin Patches, etc.

Yet all these goods are moderate in price.

You will build up your tire business and your business as a whole, to a new level by joining hands with Michelin. Write today.

Michelin Tire Company

Milltown, N. J.

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LAST CALL!

The Before (New York Show) issue of Motor World will be out December 26.

Copy and cuts should be in our hands not later than Saturday, December 22. Because transportation of mail is a bit uncertain, we urge early dispatch of copy.

Send reservations at once.

DON'T MISS THIS OPPORTUNITY

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The Chilled Rubber Process



THERE IS A **SOUND REASON** for the remarkable records made by Gillette Tires. In addition to other materials of the highest quality, the rubber used in their manufacture is rendered practically wear - proof by the "Chilled Rubber Process," a special treatment developed and perfected in the laboratory of the Gillette Rubber Company at Eau Claire, Wisconsin.

THE "CHILLED RUBBER PROCESS" GIVES THE RUBBER A TOUGHNESS, an added life and an extreme tensile strength far in excess of that possessed by ordinary rubber.

THIS PROCESS IS THE EXCLUSIVE property of the Gillette Company. It marks a distinct advance in tire manufacture, and gives to the Gillette an advantage over other tires in the characteristic most in demand—**wearing ability.**

Safety

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Gillette

The Best Guarantee

The best guarantee that can accompany an automobile tire is a record for exceeding its warranted mileage in actual every day service.

An automobile owner wants his tires to **WEAR!** That is the big thing, and the one really worth considering. Fancy tread designs are all right in their way, but the tire that really delivers is the one that lasts from 6,000 to 10,000 miles without giving trouble.

The Gillette Tire's Strongest Point Is Its Wearing Ability

The Gillette Safety Tire contains no freak construction. It bears no "extra heavy" tread nor "re-enforced" walls or unsubstantiated arguments. It is a light, round, perfectly balanced tire that fits the wheel and rolls smoothly and evenly beneath the car.

It is the etraordinary **QUALITY** and treatment of its rubber that makes it so superior to the ordinary.

The rubber in a Gillette Tire is livelier, tougher, of greater tenacity and far greater wear resistance than ordinary rubber because of the special "Chilled Rubber Process" by which it is prepared.

By every known test—both in the Laboratory and in actual service on thousands of automobiles—this rubber has shown itself to possess a wear-resisting strength beyond that of any other rubber yet produced.

The Gillette Dealer Has the Finest Tire Proposition for 1918—That We Guarantee

From every viewpoint the Gillette Dealer will have the advantage this coming year. Besides having a tire widely advertised and thoroughly proved to possess the most remarkable wearing qualities, he will have a service, a genuine sales help, and a strength of protection for his business of a character unique in the industry. The Gillette sales policy and its treatment to dealers is worthy of your consideration.

We should like to hear from good responsible dealers who can appreciate an unusual opportunity and have the ability to make the most of it. Write or wire at once for full particulars.

THE GILLETTE RUBBER COMPANY

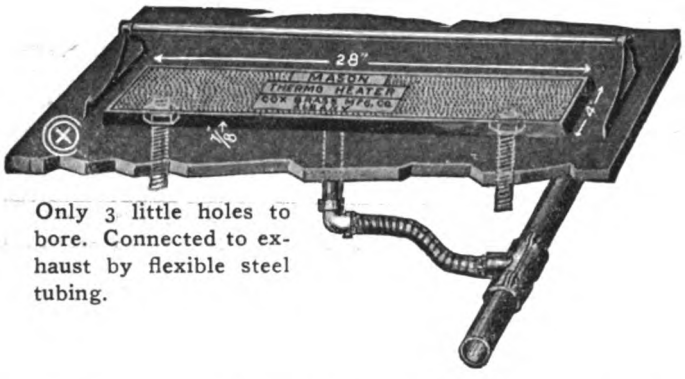
Chicago Office
122 Michigan Ave.

General Sales Office
1824 Broadway, New York

Factories
Eau Claire, Wis.

Tires

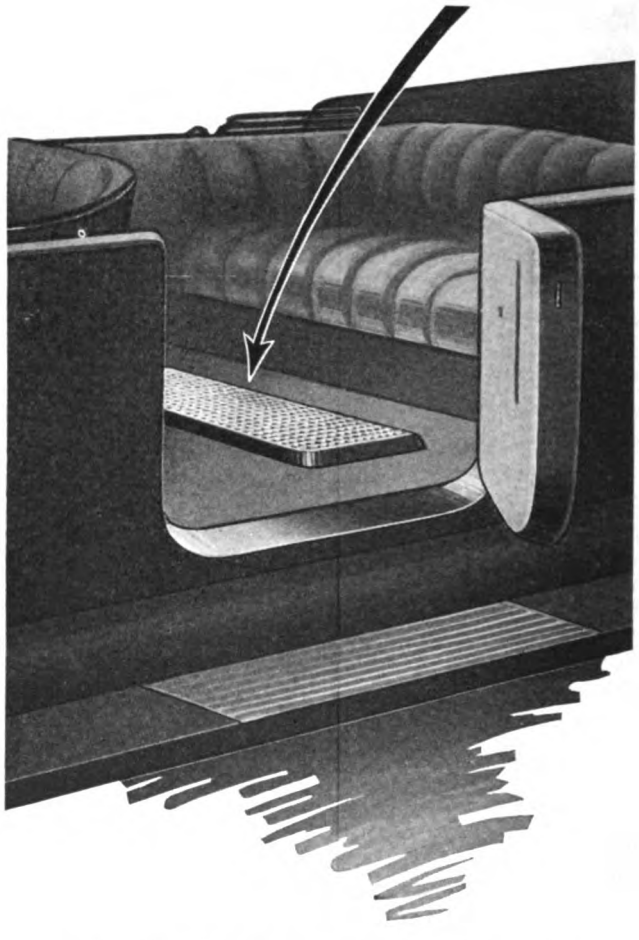
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Only 3 little holes to bore. Connected to exhaust by flexible steel tubing.

Five Big Advantages OF THE THERMO AUTO HEATER

1. *It is quickly and easily installed. Only three little holes to bore.*
It sets *on*—not in –the floor. There is a quarter-inch space between floor and heater, making it sanitary and preserving the strength and solidity of your car floor. You do not have to butcher the car to install the Thermo Heater. Three little holes admit connections, and the heater is connected to exhaust by flexible steel tubing.
2. *Has a Large Radiating Surface—about the Same Ratio as Your Steam Radiators at Home.*
The Thermo Auto-Heater throws off a large quantity of heat without becoming red hot itself. The heat enters at the center, where it is divided and carried to either end, equally heating the entire radiating surface.
This heater warms the car and its occupants thoroughly, instead of burning their feet while their bodies freeze.
3. *Gives Exactly the Desired Quantity of Heat—Automatically Controlled to Suit the Weather.*
You can set the Thermo Auto-Heater at exactly the temperature you desire maintained, and then forget it. It will never forget you, but will maintain that temperature through freezing days and warm days—evenly, automatically, unfailingly.
The Thermostat is self-contained and self-regulated by Nature itself. It *cannot* fail.
4. *Needs No Attention Whatever After Installation.*
The Thermo Auto-Heater is strong, simple, and well made of the best materials. It will retain its good looks and efficiency indefinitely without the slightest attention.
5. *Fits Any Exhaust Pipe—From 1½" to 3".*
With our special exhaust fittings, any exhaust pipe, from 1½" to 3" diameter, can be fitted with one stock fitting. This fitting is made with asbestos packing, which will accommodate itself to the diameter.



DESCRIPTIONS AND PRICES

Model "A," 28" long, 4" wide, 1" thick, Cast Iron Black Enameled $12.00

Model "B," 28" long, 4" wide, 1" thick, Polished Cast Aluminum $18.00

Model "C," 14" long, 8" wide, 1" thick, Cast Iron Black Enameled $12.00

Model "D," 14" long, 8" wide, 1" thick, Polished Cast Aluminum $18.00

COX BRASS MFG. CO.

No. Pearl and Van Woert Sts., Albany, N.Y.

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Bursting The Bubble of False Claims with the Cold Steel of Fact

A C Plugs Win Big Races

The manufacturers of AC plugs have kept pace with the growth of the motor industry, with the result that they are furnishing spark plugs that will stand the most excessive strain and give efficient service in high power aeroplane motors.

Following We Give Some of the Performances of AC Equipped Cars:

Uniontown—Billy Taylor, driving an AC equipped Stutz, won the Universal Trophy Race and with it the $10,000.00 Carl Laemmle Cup. Taylor's time for the 112½ miles was 89.9 miles per hour. T. P. Fetterman, driving an AC equipped Peerless, won the Dealer's race at an average speed of 82.6 M. P. H.

Indianapolis—E. G. Baker broke world's 24-hour Motorcycle record, using AC plugs. He covered 1386¼ miles, beating the old record by 232¾ miles. Not one second's plug trouble was experienced.

Omaha—Ralph Mulford in an AC equipped Hudson Super Six won the big race. Tom Milton in an AC equipped Duesenberg was second. In the 50 mile race AC equipped cars finished 2nd, 3rd and 4th.

Uniontown—Fetterman in a Peerless, AC equipped, won the Dealers' race, breaking all records with an average speed of 92 M. P. H. Vail, in an AC equipped Hudson, was second in the four-cornered match race, winning the longest heat of the race.

Tacoma, Wash.—Patterson in a Hudson Super Six, AC equipped, won the 150 mile Pacific Coast Championship Race, breaking the track record. Roades and Malcolm, both driving AC equipped Hudsons, finished third and fourth respectively.

Minneapolis—Ira Vail, in a Hudson Super Six Special, AC equipped, won the American Red Cross Derby at the Fort Snelling Speedway, average speed 96.30 miles per hour. Five of the eight cars that finished used AC plugs.

Sheepshead Bay Speedway—Joe Dawson in a Chalmers Stock chassis, equipped with AC plugs, covered 1898 miles in 24 hours, averaging 79.08 miles per hour, breaking previous 24-hour record, also previous 12-hour record.

Sheepshead Bay Speedway—Wm. A. Rader, driving an AC equipped Packard, made 10 miles in 4 min., 50.88 sec., an average speed of 123.76 M. P. H. The best previous record was 5 min., 19.78 sec., made at Brooklands, England.



IN this matter of conflicting claims the average owner is completely puzzled. Which are true? Who is right? That's why we make no claims. We simply settle the confusion with the *facts* about

AC Spark Plugs

The Standard Spark Plug of America

There can be no better proof than these here given—the decision of America's leading engineers who equip with AC, and the remarkable records made on track and highway. These proofs *talk*.

Special types made for Fords, Maxwells, Overlands and Studebakers. Owners should not miss this way to get full results. On sale everywhere.

Champion Ignition Company
Sole Manufacturers, Flint, Mich.

You have never had real Spark Plug satisfaction unless you use AC.

Manufacturers Equipping with AC

Cadillac	Buick
Pierce-Arrow	Oakland
Packard	Oldsmobile
Marmon	Nash
Hudson	Kissel Kar
Chalmers	Premier
Hupmobile	Knox
Chandler	Abbott
Haynes	Pathfinder
Chevrolet	White
Dort	Delco-Light
Cole	Murray
Reo	Case
Paige	Economy
Peerless	Jordan
Pilot	Liberty
McFarlan	Jackson
Paterson	Apperson
Davis	Anderson
Lexington-Howard	Phianna
Scripps-Booth	Locomobile
Crane-Simplex	Disbrow
Stearns-Knight	Daniels
Saxon	Westcott
Stutz	Monroe
National	Singer
Velie	Stephens
Hatfield	Dodge Brothers
American-La France	McLaughlin (Canada)
Old Reliable Trucks	Dorris
Wilcox Trux	Duesenberg
Republic Trucks	Henderson Bros
Four Wheel Drive	Gabriel Trucks
	Netco Trucks
	Sterling Trucks
	Diamond T Trucks
	Case Tractors
	Federal Trucks
	G. M. C. Trucks

Gramm-Bernstein Trucks
Menominee Trucks
Brockway Trucks
Wisconsin Trucks
Robinson Fire Trucks
Titan Trucks
Advance-Rumely Tractor
Moreland Trucks
Sandow Trucks
Signal Trucks
Samson Tractors
Acme Trucks
Maxim Trucks
Riker Trucks
Stewart Trucks



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There are hundreds of machine shops throughout the country that are fully equipped to handle surplus or special manufacturing work.

For further information see page 141 of this week's number

CONTRACT WORK DEPARTMENT

MOTOR WORLD

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Are You Interested In Storage Facilities Throughout North America?

Do you ever need to know the Name and Facilities of a Trucking and Transfer Company in a Distant City?

If so, you need

The TRANSFER and STORAGE DIRECTORY

Just Off the Press

CONTAINS

Complete merchandise rate guide for storage warehouse service.

Gives storage charge per month and labor charge per ton on comprehensive list of commodities.

CONTAINS

Revised reports and advertisements of transfer and storage companies in every city of the United States and Canada.

Gives name and address of company, officers, kind of commodities handled, facilities, shipping directions, etc.

Sent on approval to any reliable firm. Kindly make request on your business letterhead.

PRICE, $3.00 PER VOLUME (320 Pages)

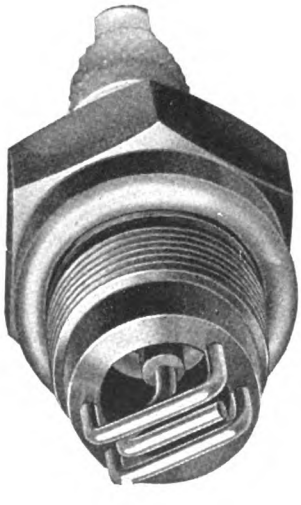
Transfer & Storage Publishing Corporation

237 West 39th Street **New York**

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BERGIE
National
SPARK PLUGS



The Spark Plug
With the One Inch
Firing Surface

Remarkable Winter Efficiency

is a quality your spark plugs must have in these days of low-grade, slow vaporizing gasoline and hard starting motors.

You now scarcely expect the ordinary, old-style spark plug to meet present day conditions.

A disinterested trial will demonstrate why BERGIE NATIONAL SPARK PLUGS are best for winter service. Their ONE-INCH Firing Surface with 7 to 10 hot, fat sparks gives quicker, easier starting. You will find your motor "warms up" more readily. You will discover that you get more POWER from less gasoline.

Try a set this winter. Sold on 30 Days' Trial. $1.00 each for all cars. Order of your dealer, or direct if he cannot supply you.

Dealers: Write for unusually interesting proposition.

BERGIE NATIONAL SPARK PLUG CO.
ROCKFORD ILL.

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BOYCE MOTO METER

THE success of the Boyce Moto-Meter rests upon the fact that it is absolutely essential for the safe and economical performance of the gasoline engine. This "essential" quality is solely responsible for its universal use today.

No device that is not a necessity could have created such rapid and wide-spread demand.

Harrison W. Boyce

The Moto-Meter Co., Inc.
Long Island City, N. Y.



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BOYCE MOTO-METER
NEW SALES POLICY

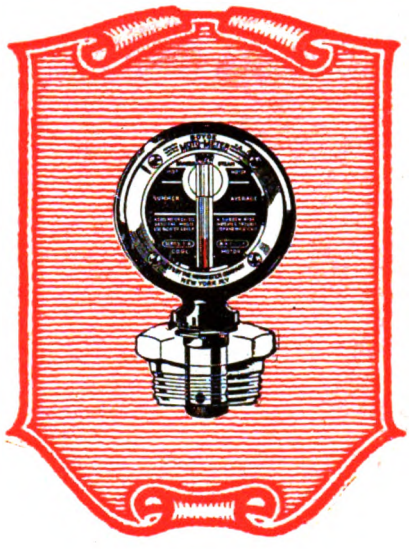
ON and after January 1, 1918, the Boyce Moto-Meter will be handled by all recognized jobbers on an equal basis. 91% of our distributor contracts have been cancelled. The proposition is so attractive that the jobber who does not specialize on the sale of Boyce Moto-Meters will lose on the best selling proposition offered him in years.

WRITE us direct for this new sales proposition. As a jobber we know we can interest you for 1918.



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BOYCE MOTO-METER
GENERAL POLICY



THIS business was founded —and it has prospered— by giving a square deal to the entire motor industry.

IF anyone is in any way dissatisfied with any Boyce Moto-Meter, please remember it is our desire and wish to retain your good will always and we stand ready at all times to adjust any matter to your complete satisfaction.

Every Boyce Moto-Meter must give absolute satisfaction.



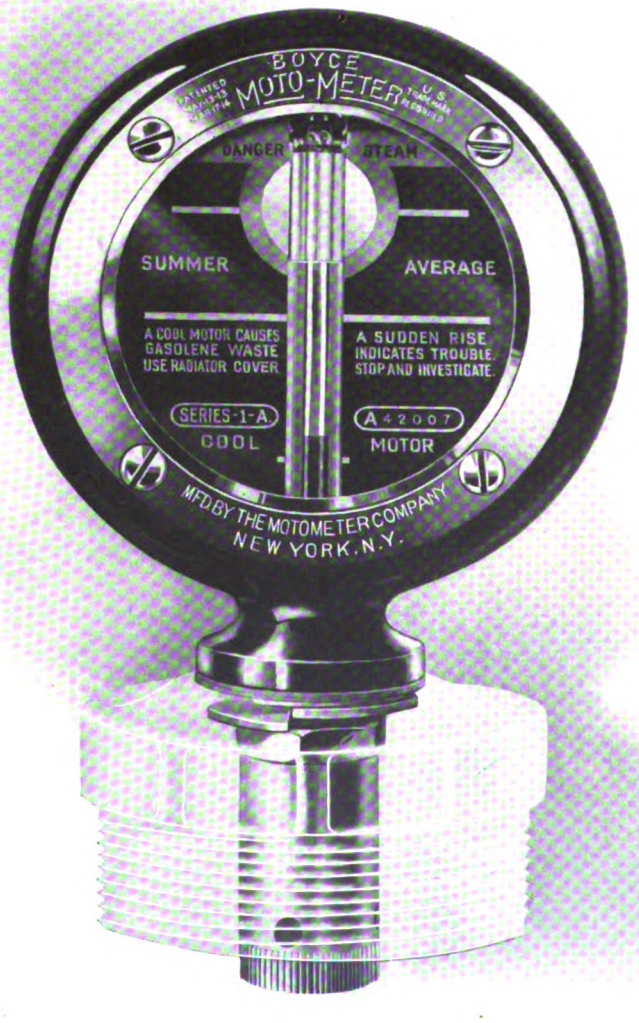
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BOYCE MOTO-METER STANDARD MODEL

The largest and most popular type, Boyce Moto-Meter used as Standard Equipment on the majority of America's motor cars.

Price, $10.00



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BOYCE MOTO-METER NEW SERVICE

OUR Service Department is now under new management and a new system installed whereby customers are treated in the most courteous manner and instruments repaired, as a rule, the same day they are received.





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BOYCE MOTO-METER GUARANTEE

AT a recent date, unknown to us, a small quantity of inferior dye found its way into our production and a limited number of Boyce Moto-Meters were shipped which, in our opinion, will give trouble, that of the fluid fading or losing its color. It is our desire and wish that all instruments showing this defect be immediately returned to us and replaced with new parts at our expense.

YOUR attention may or may not be called to such an instrument, but please bear in mind our desire always to make good on Boyce Moto-Meters found defective in any way.



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BOYCE MOTO-METER
DISTANCE TYPE

For airplanes, motor boats, tractors and all installations where the standard radiator type cannot be installed on a line with the operator's vision.

Price $30.00.





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BOYCE MOTO-METER TRADE CO-OPERATION

IMPRINTED catalogues, large or small window displays, unique, attractive literature, garage hangers, metal demonstrating stands, etc., are supplied the trade in large quantities.

OUR Sales Department stands ready at all times to supply full equipment for a successful selling campaign. Road men call upon all jobbers and dealers, instructing their salesmen how Boyce Moto-Meters are sold in quantities.



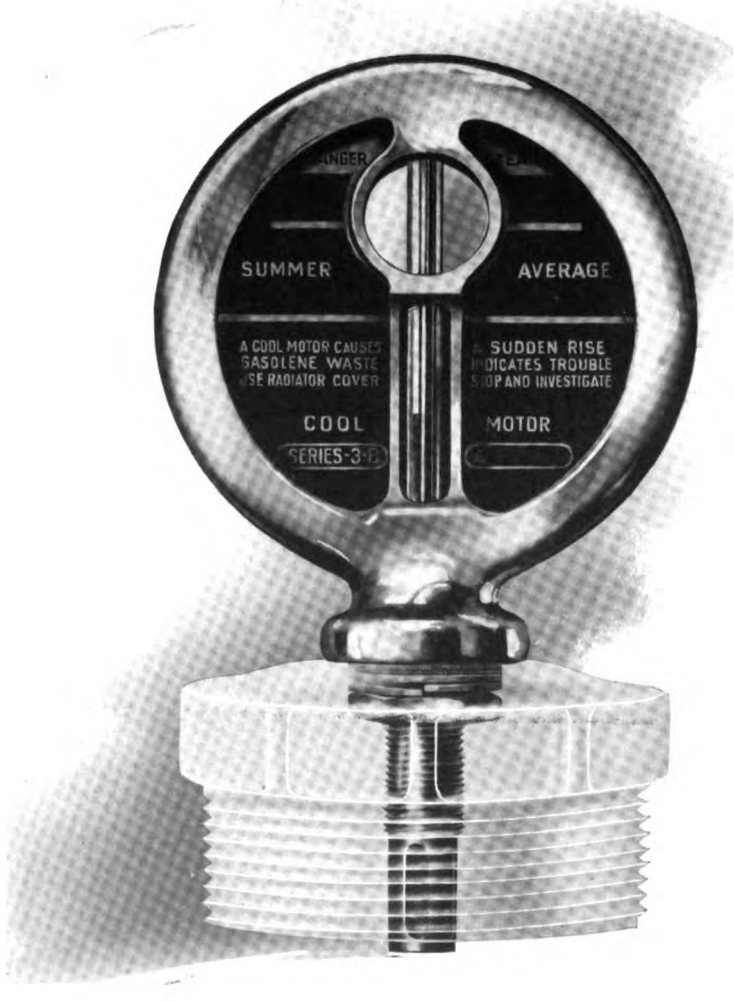
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BOYCE MOTO-METER
JUNIOR MODEL

Smaller than the Standard Model and finished in all nickel plate.

Price $5.00.



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BOYCE MOTO-METER PATENT PROTECTION

THIS company created the demand for motor heat indicators and is the exclusive licensee of the Boyce fundamental patents covering all practical installations.

IN all patent litigation we have been most successful in eliminating unfair competition and infringers of our patents. We ask the trade's co-operation in supporting a recent suggestion of the National Association of Automobile Accessory Jobbers, reading as follows:

> "Don't help the infringers—above all do not promote the interests of the 'pirate.' There is too much of this done. When a man has a patent or a reputation on some standard item of merit, his reward should be Encouragement, not Discouragement. The Association spoke very plainly on this at St. Louis as indicated on Page 23 and in other portions of the proceedings. We like the 'originator' but have little time or use for the 'imitator' and the fellow who 'pirates' another man's goods will sooner or later pirate your trade. Look out for him. He is usually a bad actor."



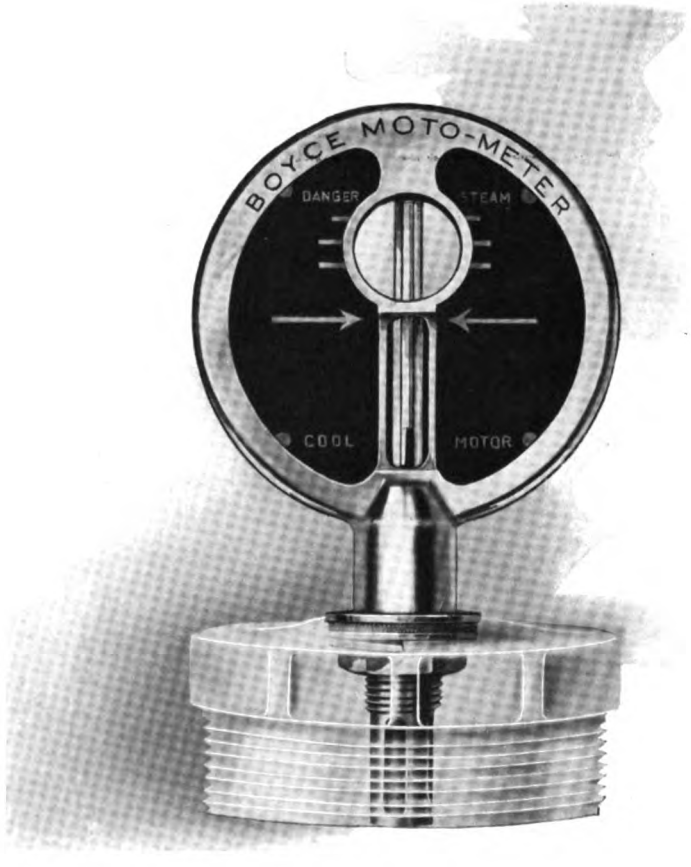
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BOYCE MOTO-METER MIDGET MODEL



For small cars, finished in nickel, heavily plated, carefully made and just as accurate as our larger models. The instrument is smaller in size than our other models and contains a slightly smaller thermometer tube.

Price $2.50.



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The following famous passenger, commercial cars and airplanes use as standard equipment the famous Boyce Moto-Meter:

ABBOTT	MC FARLAN
AHRENS-FOX	MAIBOHM
AMERICAN	MARMON
ANDERSON	MERCER
APPLETON	MICHIGAN HEARSE
BIDDLE	MONROE
BURGESS	MURRAY
CHALMERS	NETCO
CHEVROLET "8"	OLYMPIAN
COLE	OWEN MAGNETIC
COLUMBIA	PACKARD
CRAWFORD	PATHFINDER
CUNNINGHAM	PEERLESS
CURTISS	PEUGEOT
DAYTON	PORTER
DENMO	PREMIER
DETROITER	ROAMER
DORRIS	ROCK FALLS
DRUMMOND	SAYERS & SCOVILL
ELKHART	SEAGRAVE
GRANT TRUCK	SHAD-WYCK
GRAY-DORT	SIGNAL TRUCK
H.A.L.	SIMPLEX CRANE
HAYNES	SINGER
HIGRADE	STEARNS "8"
HUDSON	STUTZ
INDIANA	TEMPLAR
JACKSON	VELIE
JONES	WESTCOTT
JORDAN	WHITE
KISSEL "12"	WHITE FIRETRUCKS
L.F.W.	WHITE TRACTORS
LEXINGTON	WILLYS "6"
	WILLYS "8"

Never has any accessory been so universally approved and adopted.

To have achieved such universal recognition by the greatest engineers in the industry indicates more than approval. It indicates a demand for what the United States Court of Appeals terms an instrument "of great utility."

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BOYCE MOTO-METER
OVERLAND MODEL



THIS instrument is used on Willys-Knight and Overland cars. The stem of the instrument takes the place of the screw used on Overland radiator caps. To attach, it is only necessary to remove the present screw on the radiator cap and enlarge the hole to ½".

Standard Model at $10.00, Junior at $5.00, or Midget at $2.50 is supplied for use on Overland and Willys-Knight cars.



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BOYCE MOTO-METER SPECIAL DIALS

A HANDSOME etched metal nameplate bearing the name of car, fraternal emblem, club or individual initial

FREE

No motorist desiring both the Boyce Moto-Meter and a distinguishing plate on his radiator cap need deny himself either. With every box containing a $10.00 Standard Model Boyce Moto-Meter comes a postcard addressed to us. This card entitles the purchaser to any special dial he may desire. This offer applies only to the $10.00 model.

This is another feature which recommends the Boyce Moto-Meter to the motorist and proves a great selling advantage to the dealer.

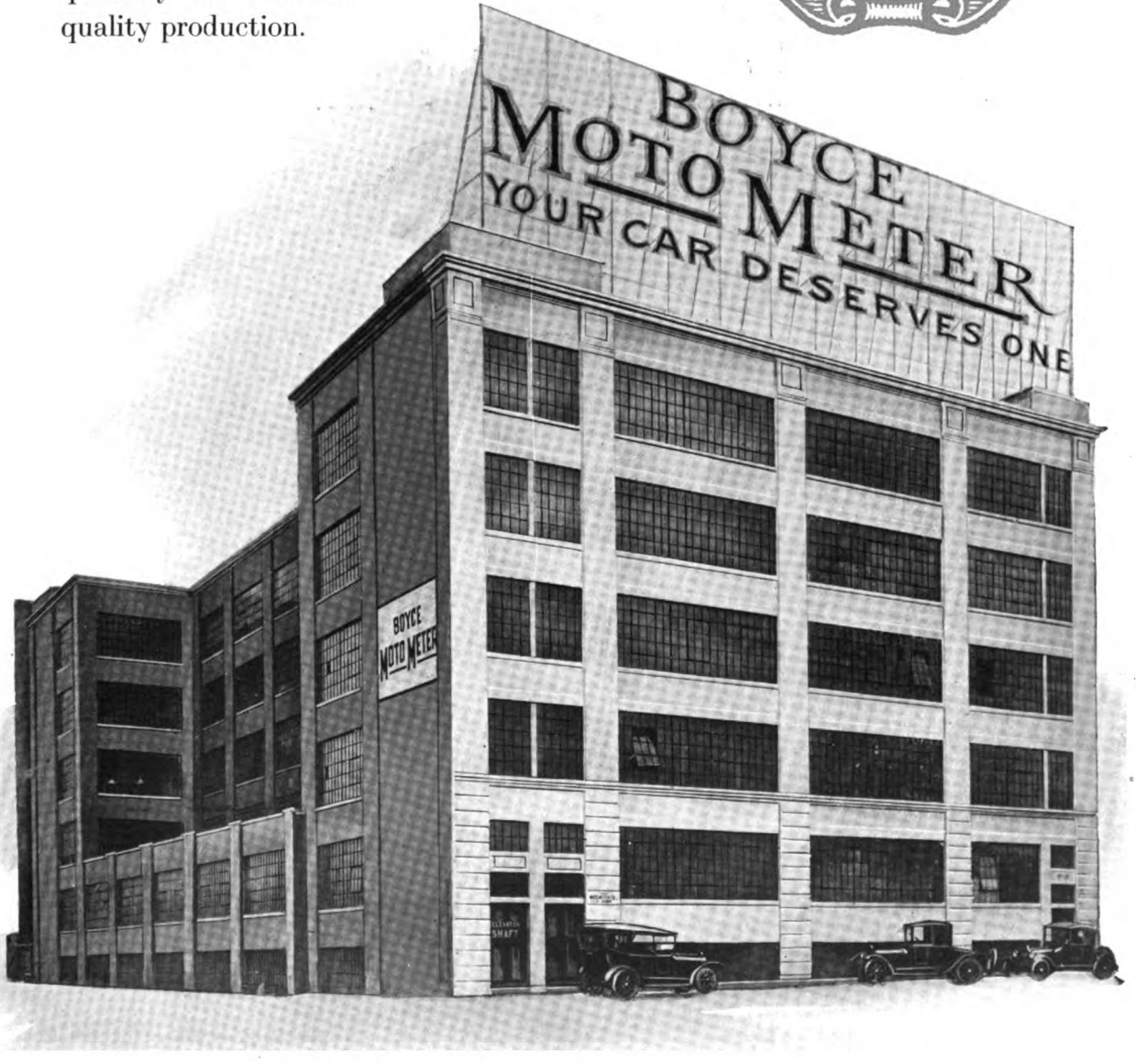


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THE HOME OF THE BOYCE MOTO-METER

The Moto - Meter Company has outgrown three factories. This one at Long Island City is a modern, up-to-the-minute plant with every facility for quantity as well as quality production.





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AN ATTENTION-GETTING DISPLAY STAND FOR THE DEALER'S COUNTER

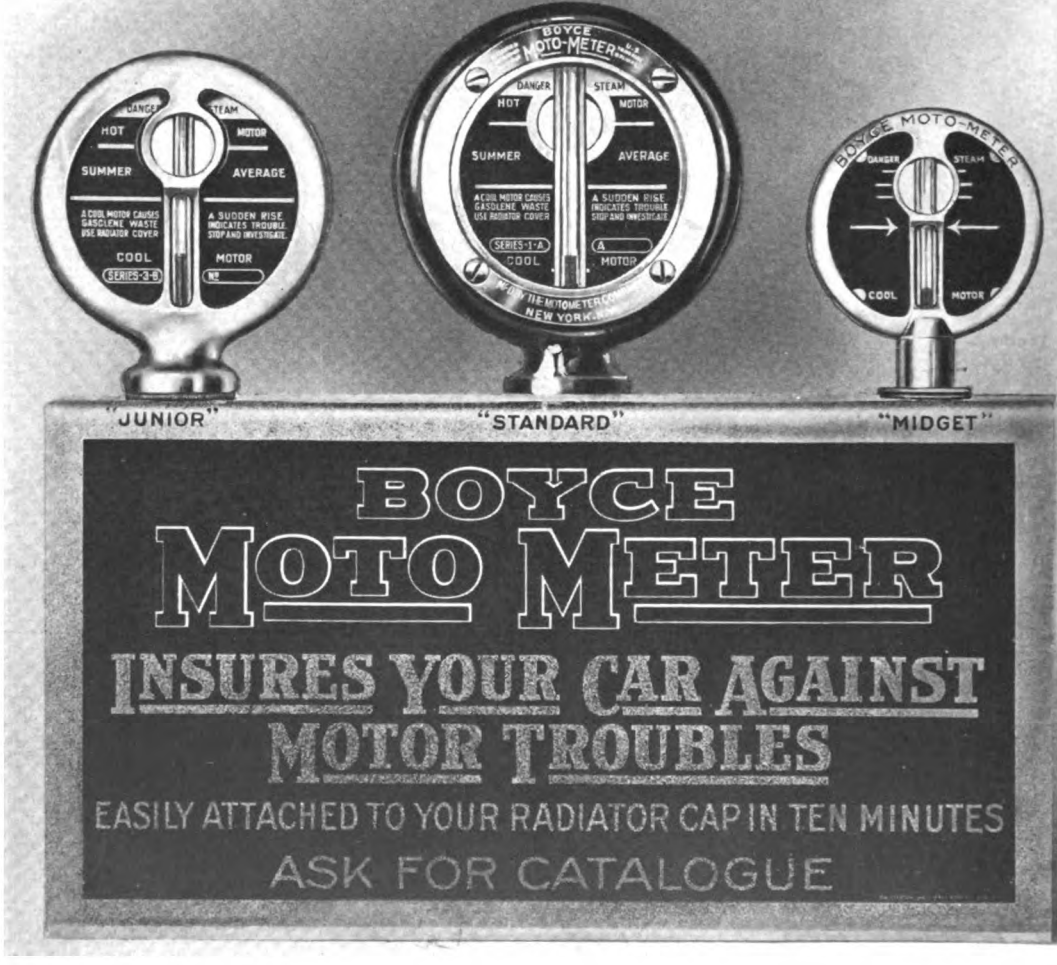
With his initial order of three or more Boyce Moto-Meters the dealer receives this "silent salesman" for his counter. No one in future trades at his store without being reminded of the Boyce Moto-Meter's merits and having his need of one pressed a little further toward the point of buying.

Supplied with all carrying charges prepaid. Write your jobber for one of these stands at once.

The Moto-Meter Co., Inc.

Creators of Temperature Instruments for gasoline motors.
Exclusive Licensee of the Boyce Fundamental Patents.

Long Island City - - - N. Y.



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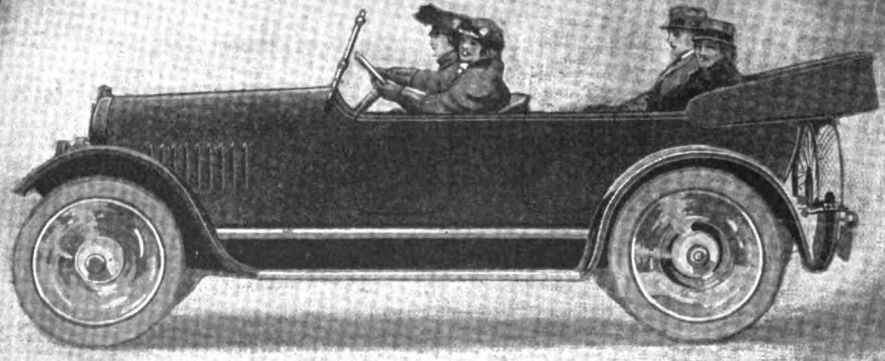
KING
EIGHT
ANNOUNCEMENT–1918

The same reliable chassis, with minor improvements—
The same four body models, still further refined—
That is the simple manufacturing program of the King for the new year.

King war-ambulances and armored cars now in military service; extraordinary endurance tests under Official A. A. A. supervision; successful performance all over America and in fifty-six foreign countries; the Company's pioneer experience in "Eight" manufacture; the fact that there are more King Eights in operation the world over than any other Eight save one; remarkable economy in up-keep: These are facts which should weigh heavily in the King's favor when the selection of a car is under consideration.

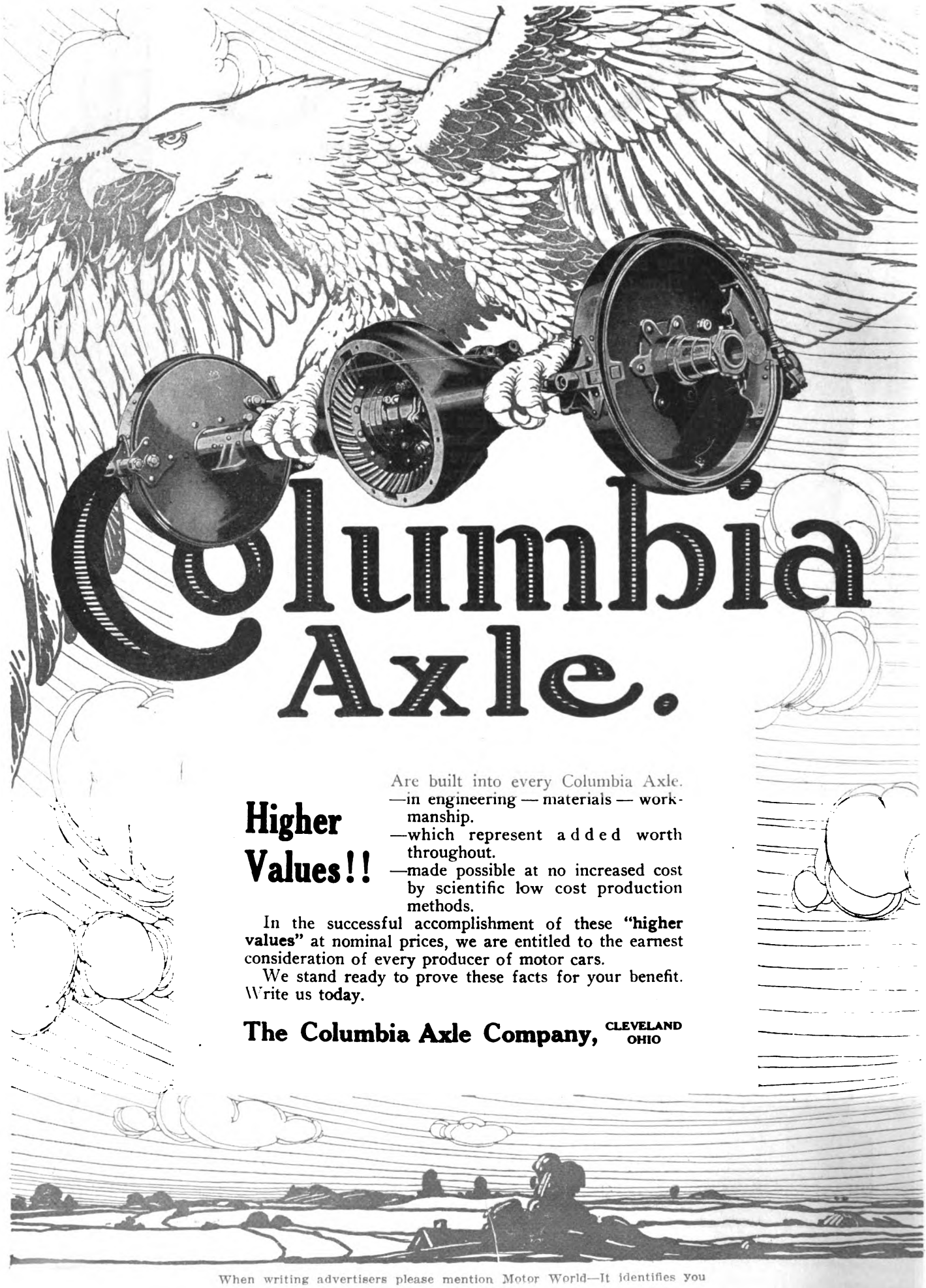
Touring Car *Foursome*
Sedan *Roadster*

KING MOTOR CAR CO.
DETROIT

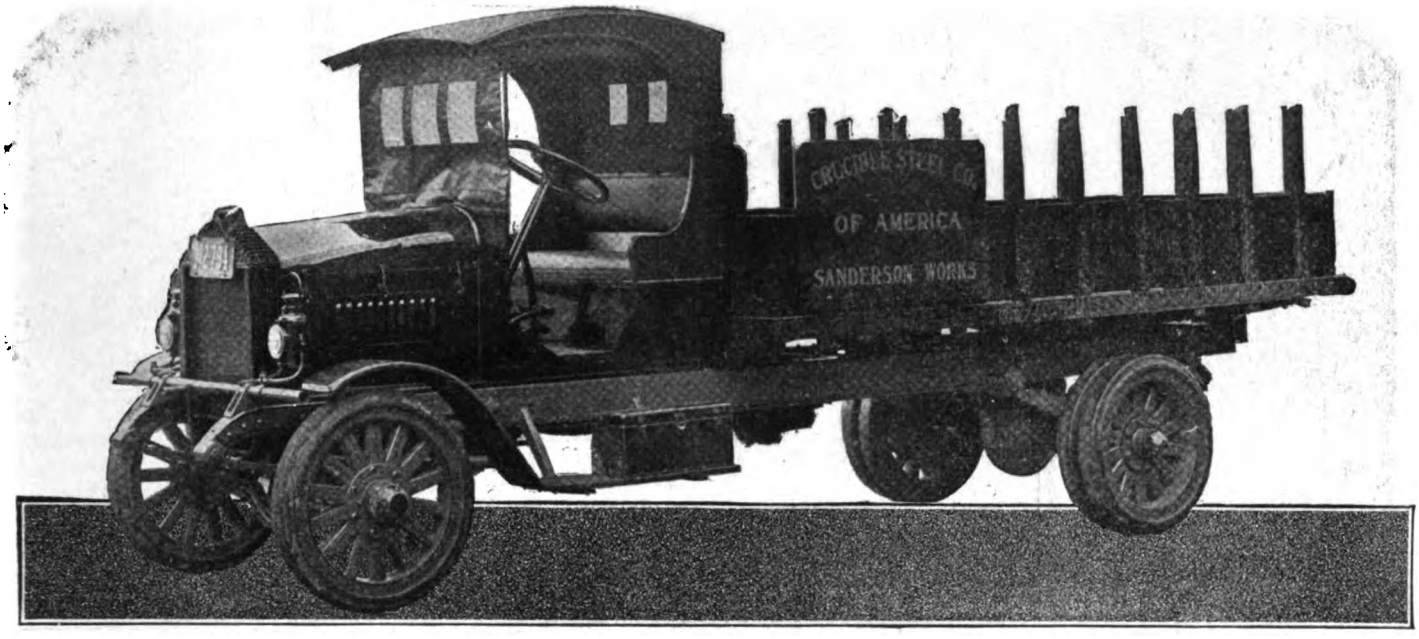


THE CAR OF NO REGRETS

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Digitized by Google



They Sell on Comparison

THE more thorough your knowledge of mechanical perfection in trucks, the more readily will you instantly appreciate the superiority of the Sanford Worm Drive Truck.

Take it unit for unit. A glance will show you that each part stands out for its super-strength—that each unit is perfection in its class.

And in the improvements made in the placing arrangements of certain of these units we have attained perfect balance.

Here are assembled in a truck such an array of superior mechanical improvements as to make for easy sales—and quick sales—for the truck user will be as quick to note them as you, Mr. Dealer.

Here is an organization of Big Brains Backed by Big Capital—A Perfect Truck—Prompt Deliveries—A Complete Line,

—a combination that means big business and big profits to you, Mr. Dealer.

Let us tell you more about the Sanford. Write or wire.

2½ Ton 3½ Ton 5 Ton

SANFORD WORM DRIVE TRUCKS

Sanford Motor Truck Company, 100 St. Mark's Avenue, Syracuse, New York

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What Hyatt Quiet Bearings Mean to the Closed-Car

The quietness of Hyatt Quiet Bearings is especially appreciated by everyone who drives a closed-car. Where noises cannot escape, it is essential that every disturbing sound be hushed or eliminated.

In this lies one of the telling features of Hyatt Bearings. Overcoming friction quietly and noiselessly, they perform their duty—unseen and unheard. Never a sound reaches the occupants of the car.

Automobile builders recognize the importance of having their closed-cars possess the quietness of Hyatt Quiet Bearings.

HYATT

QUIET BEARINGS



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Blankets won't help much if—

the oil you are using does not flow freely at Zero.

SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

THIS is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "Flows freely at Zero" and leaves less carbon, owing to the fact that it is a Southern Asphalt-base oil containing no paraffine to gum, stick or thicken.

MANUFACTURED BY

GULF REFINING COMPANY

The Largest Independent Refining Company in the World

General Sales Offices: Pittsburgh, Pa.

District Sales Offices:
New York Philadelphia Boston Atlanta Tampa New Orleans Houston



There is MORE POWER in
THAT GOOD GULF GASOLINE
AND SUPREME AUTO OIL
MANUFACTURED BY
GULF REFINING COMPANY
PITTSBURGH, PA., U. S. A.

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The National Auto Shows

Under Auspices of National Automobile Chamber of Commerce, Inc.

January 5–12
at NEW YORK

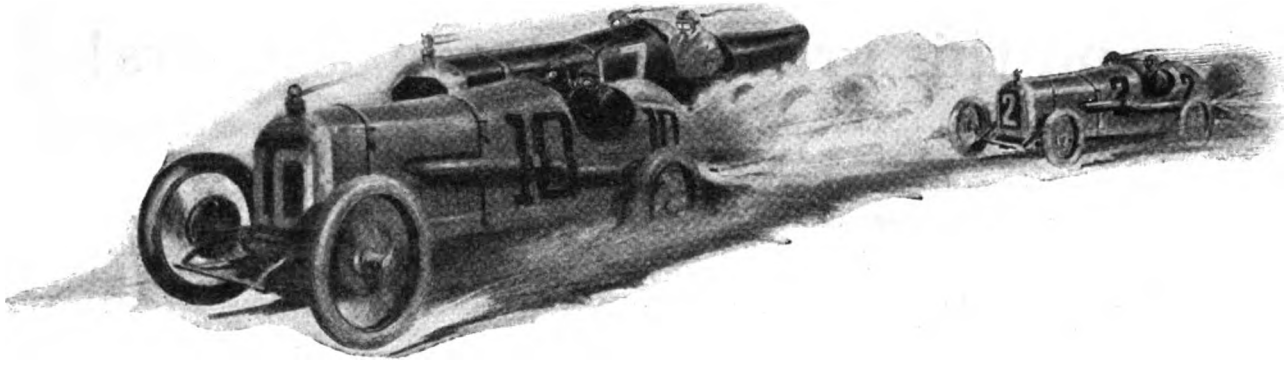
Jan. 26–Feb. 2
at CHICAGO

Four Hundred Exhibits of Cars and Accessories

S. A. MILES, Manager **7 East 42nd Street, New York City**

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They sell because they serve



Racing drivers in a single race often give spark plugs harder service than the average car owner gives his plugs in years of driving.

Rajah Spark Plugs have always equipped the majority of winners in all American races.

For exactly the same reason, Rajah Plugs have always given the longest service in all American cars.

Rajah Spark Plugs sell well because they serve even better than they sell.

RAJAH *SPARK PLUGS*

RAJAH TERMINALS AND ADAPTERS

are furnished so that Rajah Plugs can be used on any car not equipped with the Rajah type of Clip Terminal. Any size exchanged if desired



Rajah Regular Clip Terminal
Adjustable to any cable. With the extra collar supplied fits any make of plug.



Rajah Ferrule Clip Terminal
With any size ferrule required. Fits any make of plug with the extra collar supplied.



Rajah Stud Terminal
Adapter for Buick, Chevrolet, Oldsmobile.



Rajah Thumb Nut Terminal
Adapter for Dodge, Ford, Hup, Hudson, Maxwell, Mitchell, Packard Twin Six, Pullman.



Rajah Packard Terminal
Adapter for Packard 4 and 6 cylinder.



Rajah Ball Terminal
Adapter for Franklin.
Special type for Willys-Knight.



Rajah Priming Plug

Address RAJAH, *Bloomfield, N. J.*

HUGHSON & MERTON, Inc., San Francisco, Los Angeles, Portland, Seattle. JOHN MILLEN & SON, Ltd., Montreal, Toronto

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—and this great new trade is yours!

For years Industrial Europe enjoyed a virtual monopoly of one of the world's richest automobile markets. For years the United States looked on, helpless—while her great Latin American neighbors went overseas to do their buying.

But war has reversed the situation—erecting a barrier against imports from Europe, and throwing open the gates to American products. Here is an event whose significance cannot be overrated, coming at a time when war has cast its disturbing shadow on the domestic market. Never has the American automotive industry faced so rich an opportunity—a great export business actually thrust upon it, *and entirely free from foreign competition.*

NOW IS THE TIME TO GO AFTER IT

In Central and South America, Cuba, Mexico and the West Indies, the automobile has become a commercial, industrial and social necessity. Until the advent of the automobile the problem of haulage from plantations and mines to railroads and seaports was a vexing one. Horses were not equal to the long pulls under a scorching sun, and goods for shipment had to be packed in small cases and strapped to the back of the hardy little burro.

And now here, as everywhere else, the automobile has levelled distances and overcome climatic handicaps. Its utility is so universally recognized, and its benefits so greatly needed, that the Latin-American trade is turning to the United States in an effort to establish a new source of supply.

You can reach this trade at a small cost.

To keep in touch with the activities of the industry in the United States, now that we are their sole dependence for automobile products, Latin-American dealers, jobbers and garagemen are reading EL AUTOMOVIL AMERICANO—the only automobile publication going from the United States to Latin-America. It is issued quarterly and contains all news of interest to the trade, as well as special articles on shop practice, care and maintenance of the car, road building, tours, etc. Every number is profusely illustrated—and the entire publication is printed in Spanish. Your advertisement in EL AUTOMOVIL will have a responsive reading, for the trade is anxiously seeking supplies of every description—automobiles, trucks, tractors, parts and accessories.

Buying is heavy in January and February.

When the next issue is published—January—it will reach the trade in its biggest buying season: for midwinter here is midsummer there. That is the time to open connections with progressive dealers, either for immediate shipments or future orders.

Get in your copy before December 26th.

The last advertising forms close on December 26th. Get in your copy before that date, and make space reservations at once, if you want to clinch this lucrative business. Write to-day—or better yet, wire at our expense—for rates and particulars.

El Automóvil Americano

Automóviles · Camiones · Moto-Cicletas · Aeroplanos · Tractores

IS PUBLISHED BY

THE CLASS JOURNAL COMPANY, 239 West 39th Street, New York

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Champion Toledo

Dependable Spark Plugs

The Jobber's Biggest Spark Plug Profit Is In Champions

There's more volume in the normal sale of Champion-Toledo Dependable Spark Plugs than in the sale of all other makes of spark plugs combined.

And it is steady, dependable volume.

Steady, dependable, big volume makes possible quick turnover.

And quick turnover in big volume increases maximum profits for the Jobber.



The Jobber who keeps his Champion stock in good shape and gives his retailers prompt, full deliveries is getting the maximum profit that spark plugs will yield him.

This is why Jobbers everywhere are a unit behind Champion-Toledo Spark Plugs.

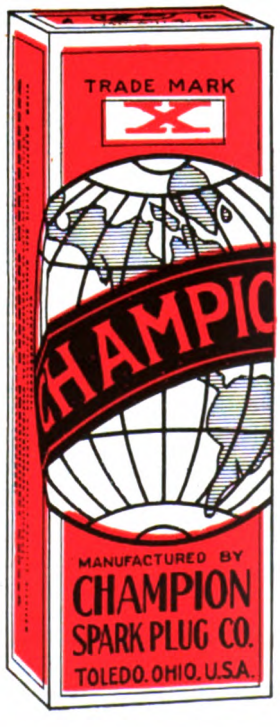
Of course there's a big underlying reason for the big, steady volume of Champion business.

Champions are standard equipment on an overwhelming majority of automobiles—the choice of the engineers.

Public appreciation of Champion superiority has crystalized in an overwhelming consumer endorsement of the choice of the engineers.

It takes a million Champions every ten working days to supply the demand.

Superior quality has resulted in this big demand. That means quick turnover for the jobber — maximum sales with minimum effort and cost—*the jobber's biggest spark plug profit is in Champions.*



Champion Spark Plug Co.
Toledo, Ohio

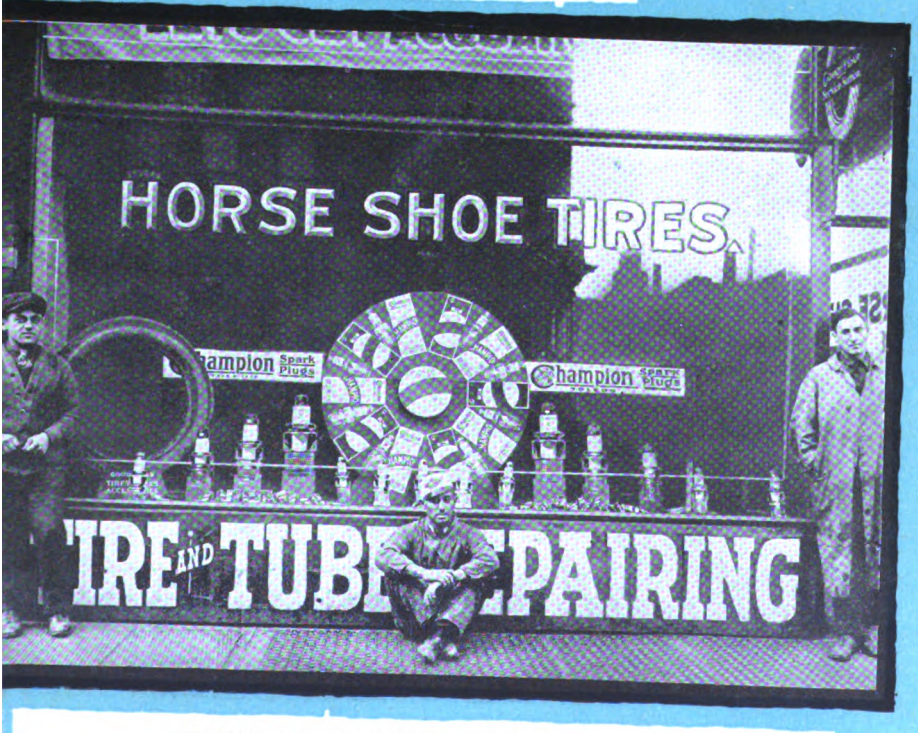
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NORTH



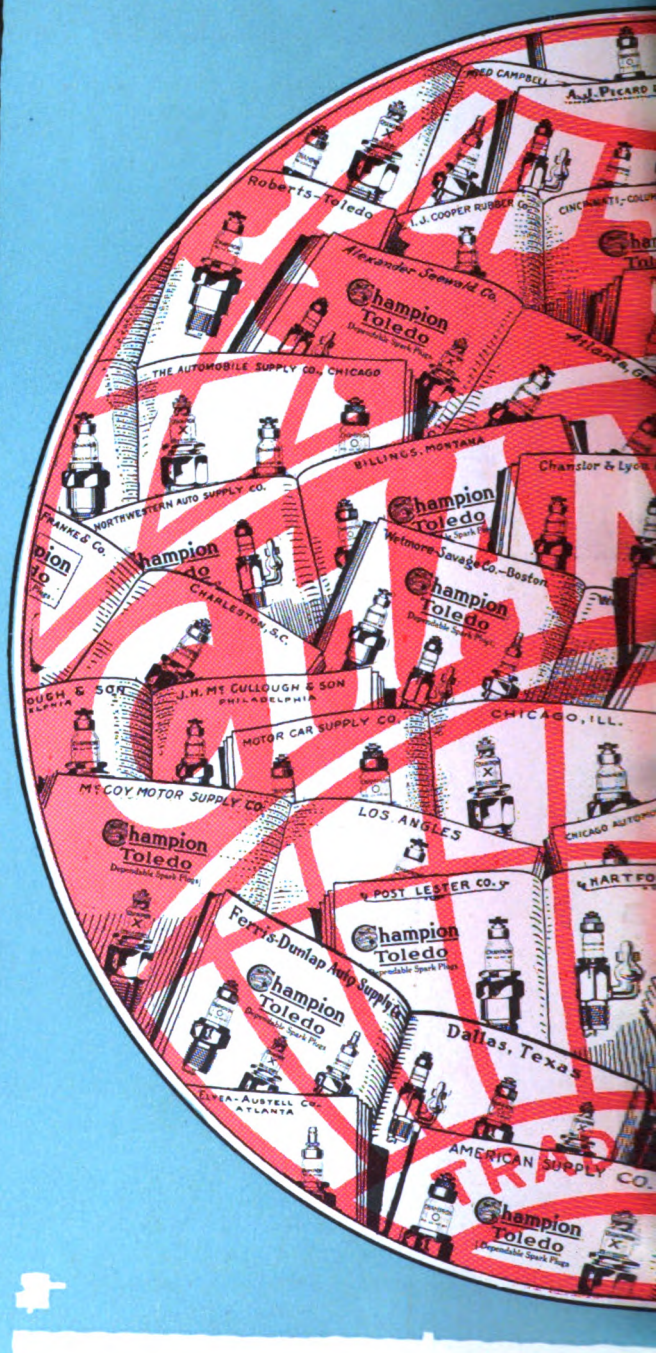
WHITE AUTO SUPPLY CO.
St. Paul, Minn.

WEST



WASHINGTON TIRE & VULCANIZING CO.
Chicago, Ill.

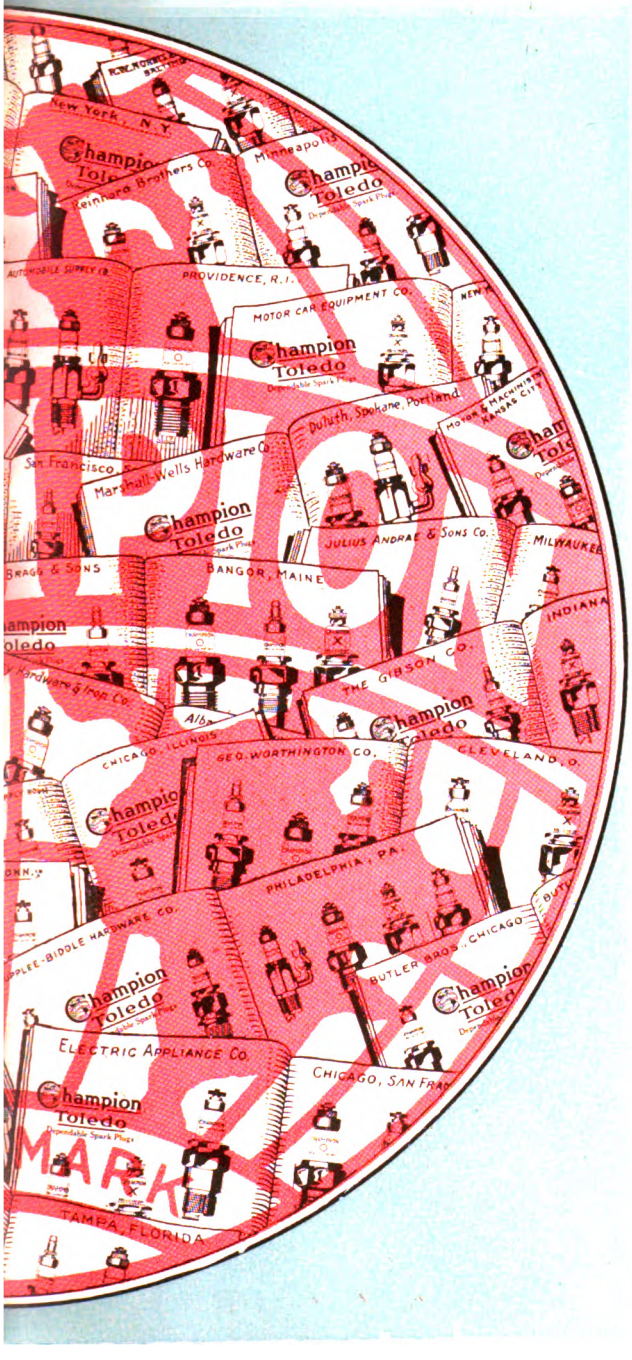
Cha
To
Dependab



PICK UP ANY Jobber's catalogue and note the space and prominence given to Champion-Toledo Dependable Spark Plugs. This universal recognition of Champion dominance is a tribute to the greater volume of sales of Champion-Toledo Dependable Spark Plugs.

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npion
edo
Spark Plugs



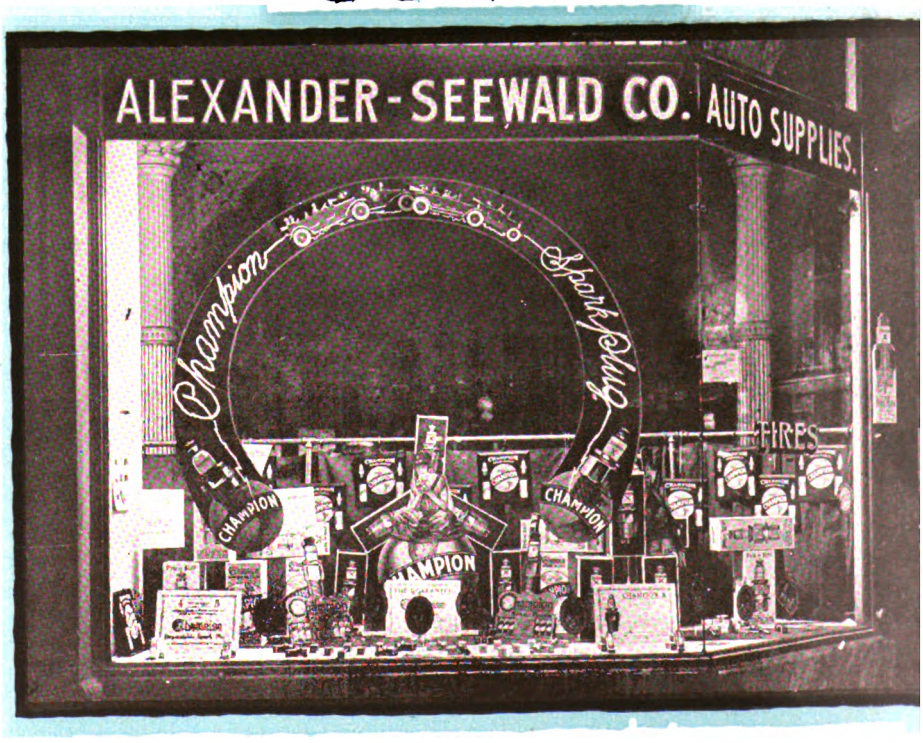
NOTE HOW UNIVERSALLY Supply Dealers and Garage Men everywhere take advantage of the greater demand for Champions by displaying in their windows their preparedness to meet this demand. Champion preparedness means the conservation of Spark Plug profits.

EAST



BLUM'S GARAGE
Staten Island, New York

SOUTH



ALEXANDER-SEEWALD CO.
Atlanta, Ga.

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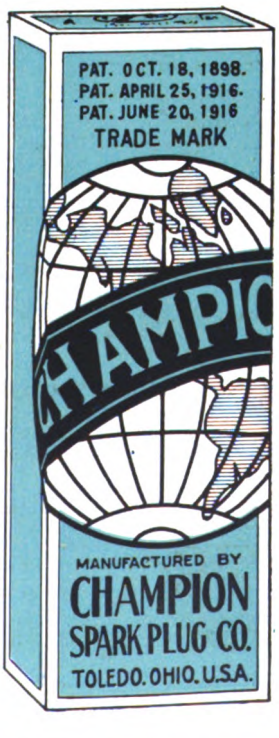
Champion Toledo

Dependable Spark Plugs

The Retailer's Biggest Spark Plug Profit Is In Champions

The Retailer who keeps well stocked with a full line of Champion-Toledo Dependable Spark Plugs is bound to get the biggest spark plug profit his business will yield.

Most car owners ask for Champions or expect to get Champions if they ask for just spark plugs.



It takes more argument than the sale is worth to get most car owners to take any other kind of spark plug.

This universal conviction of Champion superiority goes deep.

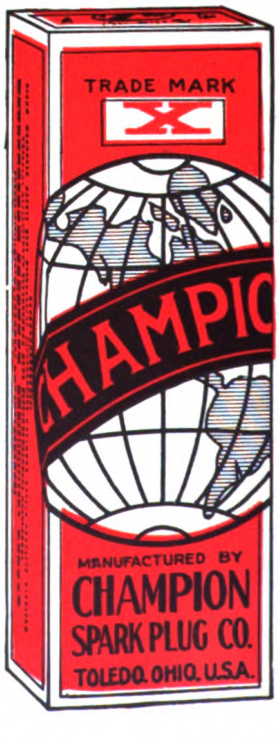
It is a conviction based on truth and experience.

It takes over a million spark plugs every ten working days to supply the demand for Champions.

The dealer's profit, like the Jobber's, is in those articles that sell steadily in big volume.

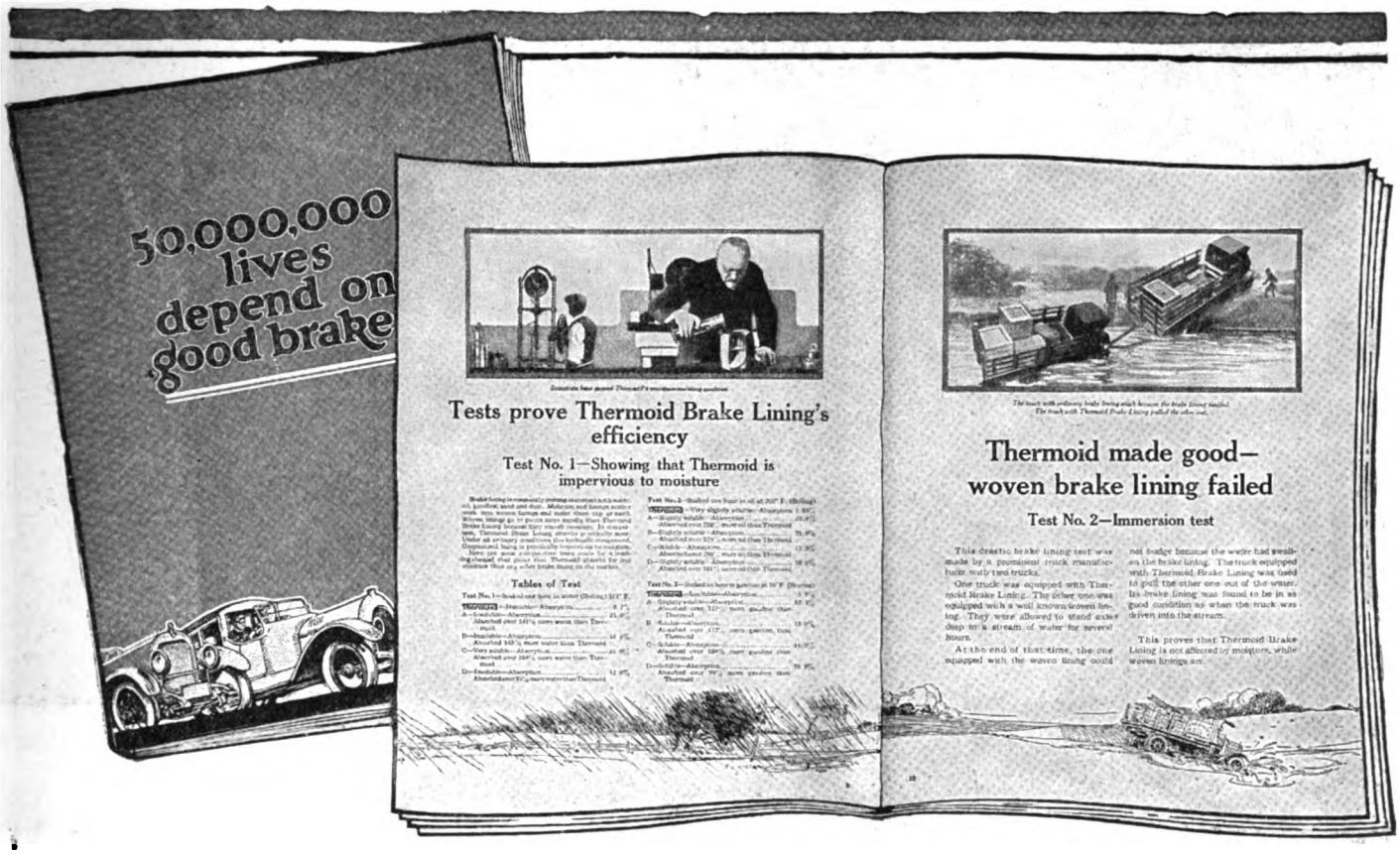
No other condition permits of the quick turnover that means maximum profit.

If you, as a Dealer, have any doubt about where the spark plug volume business is, ask the Jobbers—note the space and prominence given to Champions in the Jobbers' catalogs.



Champion Spark Plug Co.
Toledo, Ohio

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The biggest book ever published on brake lining

The story of America's greatest brake lining success and the profit opportunity it offers every dealer. Write today for a free copy

Thermoid Brake Lining is America's greatest brake lining success.

Practically all leading cars and axles use it.

Practically all leading dealers sell it.

Thousands of motorists everywhere specify it by name when they have their brakes relined.

This book tells why. It contains twenty-four pages of facts about brake lining and brake lining merchandising that you ought to know.

It explains the three exclusive features of Thermoid Brake Lining that make it so exceptionally efficient; it describes the great Thermoid advertising campaign that is educating America's millions of car owners.

It is altogether the biggest book about brake lining and the only one of its kind ever published. It describes the biggest money-making opportunity ever offered you in any brake lining.

Write now for a copy—a card will do.

Thermoid Rubber Company

Factory and Main Office: Trenton, N. J.

Branches:

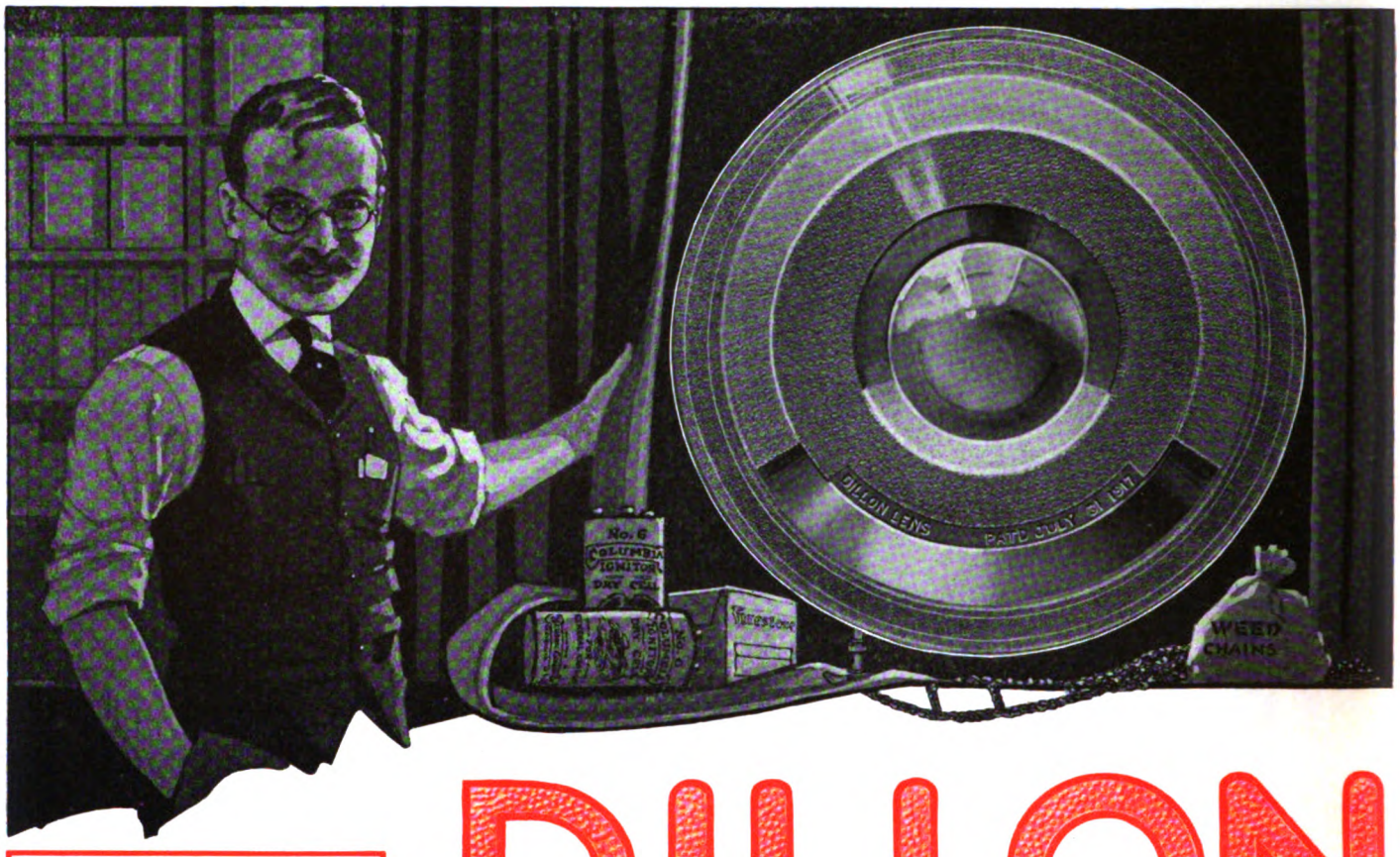
New York, Detroit, Pittsburgh, Chicago, Los Angeles, Boston, San Francisco, London, Indianapolis, Philadelphia, Paris

Winter Business—Cold Weather Made Profitable



Makers of "Thermoid Tires" and "Thermoid Garden Hose"

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DILLON

Science finally has triumphed in automobile lens manufacture. At last a lens has been created that answers fully every motoring requirement at night. The Dillon Multi-Vision Lens, perfected after two years of study and research, experiment and tests, now makes its debut in the wake of a crying demand for a lens of dependable performance. *The Dillon does what others claim to do.*

The Lens that Science Built

The Dillon Multi-Vision Lens is *not* a mere piece of pressed glass hurriedly marketed to fill an existing need. It has no colored or frosted glass, no *obstructions* to light. It is designed with mathematical precision.

The Dillon is mechanically efficient. Every angle in its construction has been scientifically determined. Every detail has a reason. The Dillon is the Lens that Science Built—the Lens You Ought to Sell.

The Square Path of Light

The average lens projects a narrow, fan-shaped beam, dangerous and ineffective. The Dillon Multi-Vision Lens distributes a *square path* of light, giving twice the lighted area, illuminating the road over 500 feet ahead and 25 feet on either side.

This revolutionary feature enables you to drive with absolute safety regardless of speed. All the road is lighted—every obstruction or depression is seen without exaggeration or shadow.

This is

Otto Deeler

This original trade character makes every Dillon advertisement *your* advertisement. Through the *Literary Digest*, *Collier's* and other national publications, Otto Deeler will address millions and focus attention on you, Auto Dealer, in a new and effective manner. Cash in on his publicity, get in touch with the Dillon distributors.

COUPON

FOR DEALERS AND JOBBERS

National Distributing Bureau, Inc.,
Oliver Bldg., Pittsburgh, Pa.

I will be glad to have full details of your proposition and selling helps.

Name .....

Address .....

What lens are you handling, if any?

.....

Jobbers' Name .....

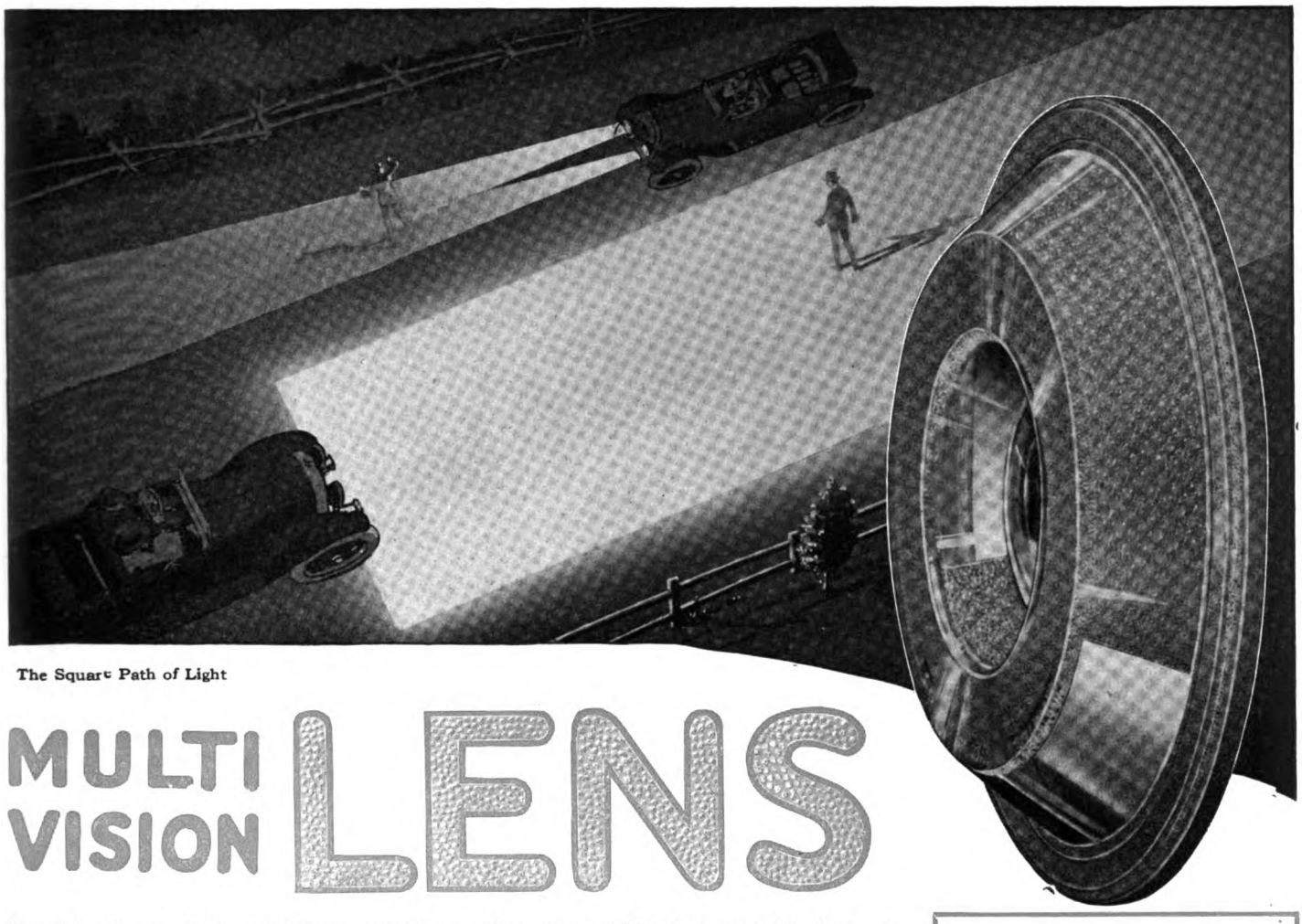
MW-1

DILLON LENS & MFG. CO., Mfrs.

WHEELING, W. VA.

TO THE TRADE—Address our Distributors, National Distributing Bureau, Inc., Pittsburgh, Pa., for full particulars.

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The Square Path of Light

MULTI VISION LENS

Consider how often you have wanted to sell an automobile lens that finally and positively removes the hidden dangers of the night—a lens that actually justifies its printed claims. Such a lens is the Dillon Multi-Vision Lens. It is the lens every sensible motorist will demand—*the lens every progressive dealer will be glad to handle.*

Legal Everywhere All Sizes, One Price

The Dillon, despite its intensified area of light, is free from glare. It is legal everywhere, in city or country.

All sizes sell at the same low price, $3.50. The size is plainly marked on the face of each lens. Thus you will find Dillon Lenses *easy to handle* as well as *profitable.*

Nationally Advertised Profit for You

From coast to coast the Dillon Lens will be advertised. Unlike other campaigns, however, Dillon advertisements will be made *your* advertisements, because of the introduction of an original trade character, representing the auto dealer. (See panel at left of opposite page.)

DEALERS AND JOBBERS—WRITE

If you can visualize and appreciate the demand for a lens so dependably efficient and so widely advertised as the Dillon you will want to meet it. Write us at once and we will send you full details of our generous proposition as well as our unique FREE selling helps.

PERSPECTIVE VIEW

There are three vital features of Dillon design each of which contributes to the *ultimate* in light distribution. The mottled glass diffuses the light, while the clearer portion below illuminates the road at the side and in front, hence a *square path* of light and therefore, twice the lighted area. The bull's-eye in the center, a distinguishing feature of the Dillon Multi-Vision Lens, concentrates and magnifies the central beam of light below eye-level. These otherwise dazzling rays are scientifically neutralized, diffused and deflected from the clear glass immediately above the bull's-eye.

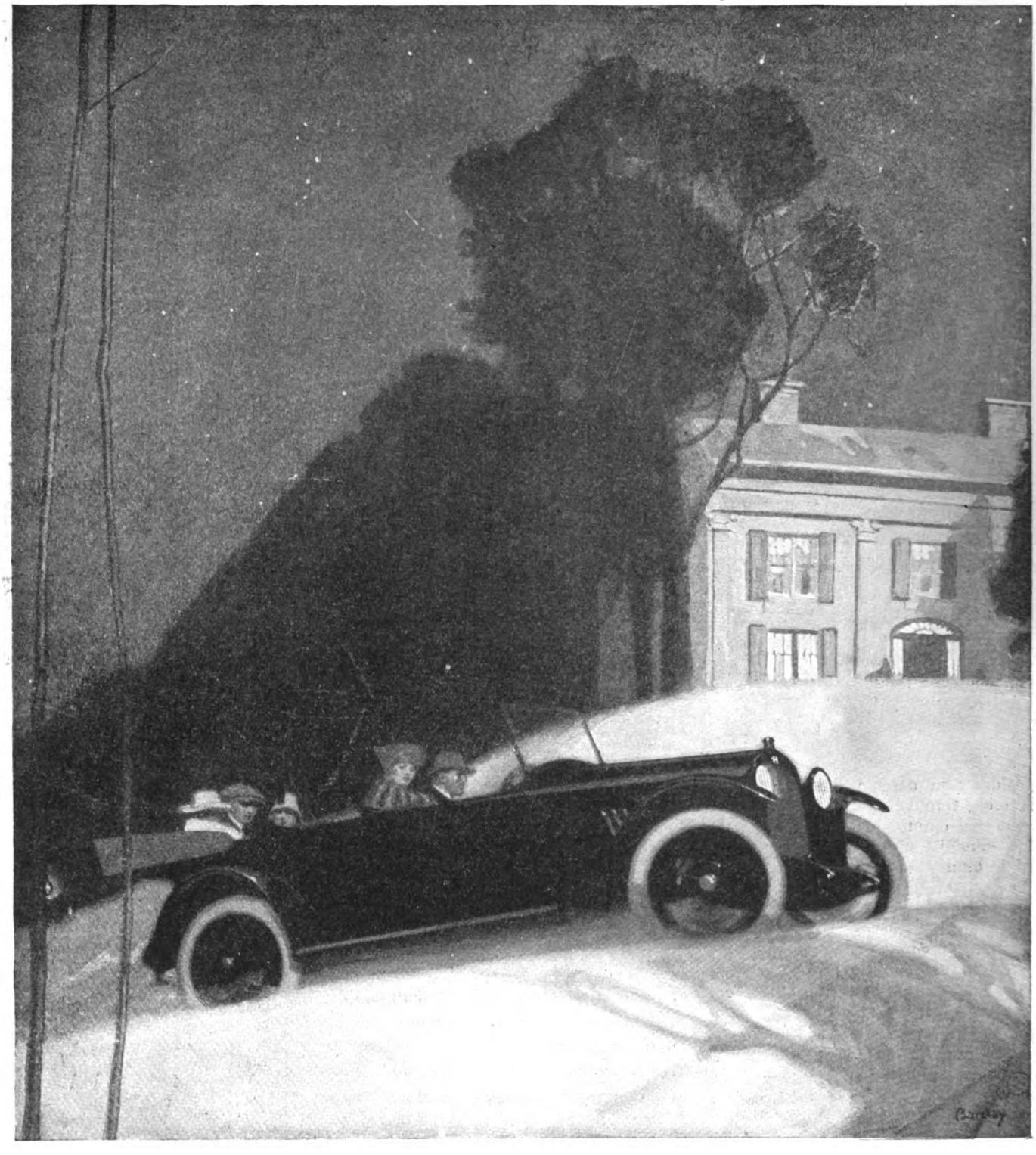
$3.50 per pair
Any Size
Anywhere in U.S.A.

NATIONAL DISTRIBUTING BUREAU INC.

Sole Distributors for Dillon Lenses

Oliver Building Pittsburgh, Pa.

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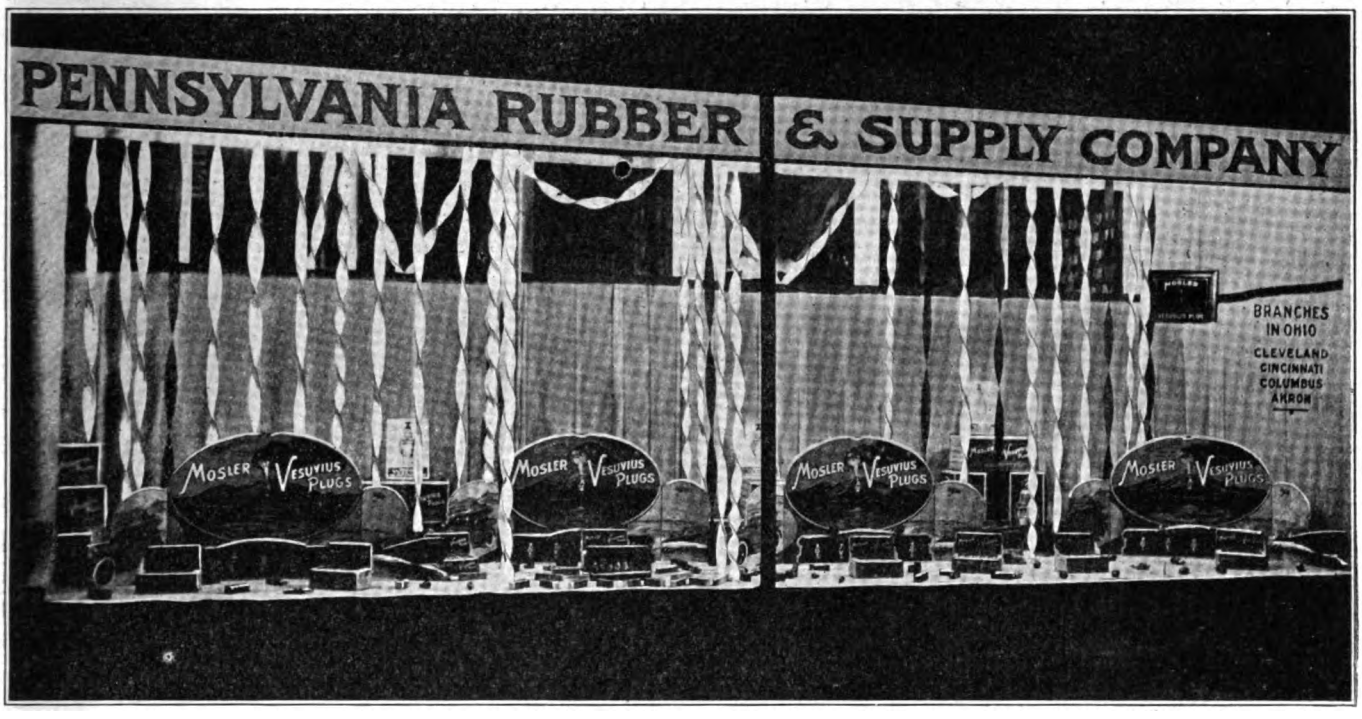


The Comfort Car

Hupmobile

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18 Years of Leadership in Spark Plug Manufacture



In this prize-winning window the trimmings were of blue and white crepe paper to match the color scheme of the striking Vesuvius cutout and display boxes, which are blue and white with a touch of red to emphasize the color of the flames of Mount Vesuvius.

THE WINNER

The contest inaugurated by A. R. Mosler & Co. for the best window display made up with Mosler Vesuvius Display Helps was productive of many unique, attention-getting windows.

The winner of this contest was the Pennsylvania Rubber and Supply Co., in its Columbus, Ohio, store, the display being shown during the period of Oct. 1 to Oct. 20. Great credit is due Mr. A. Fishbaugh, the manager of this store, and his window dresser, Mr. Samuel Hammon.

MOSLER VESUVIUS PLUG

Bear in mind that this company not only won the prize offered but their business during the period of the display showed a big increase in spark plug sales. You can do the same thing. Write for the Vesuvius Display Helps. Use them frequently during the dull winter months and get your share of Vesuvius business.



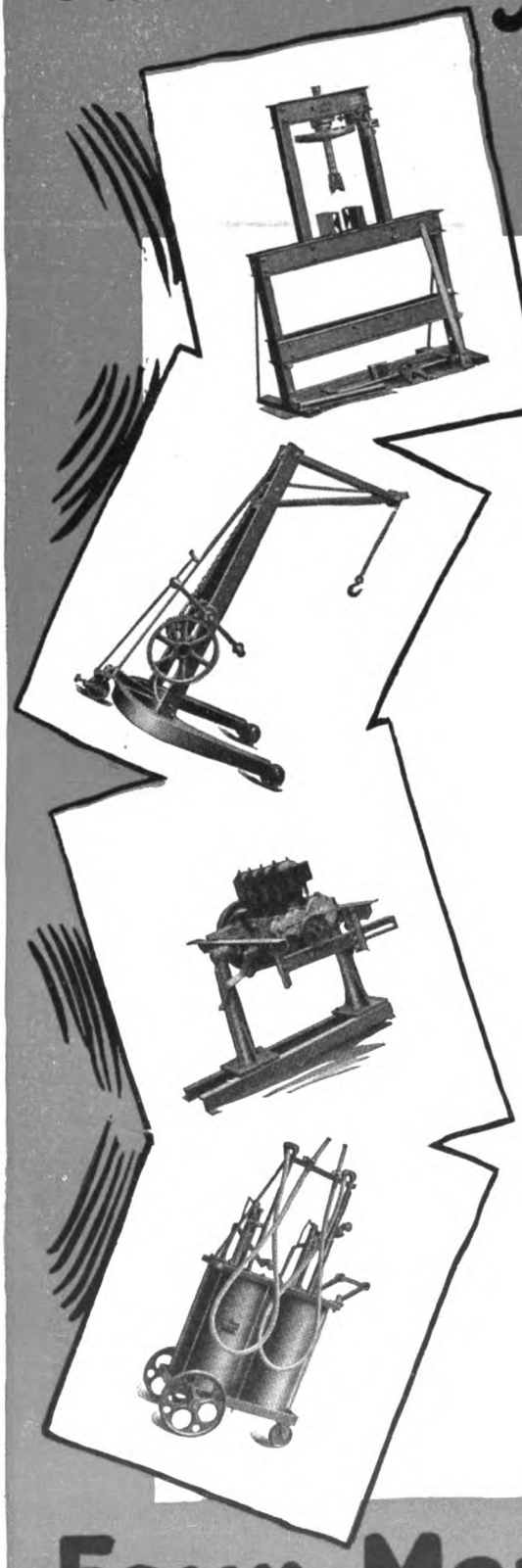
Manufactured under A. R. Mosler's Patent No. 1,218,298, March 6, 1917. Other Patents Pending.

A. R. MOSLER & CO. - - New York City

THE INDESTRUCTIBLE PLUG GUARANTEED TO OUTLAST THE MOTOR

Digitized by Google

These Money Makers For Prizes at the Auto Shows



EVERY garage man visiting our exhibit at either the New York or Chicago Show will be given an opportunity to get some of the famous Manley Garage Machines **free.**

We will conduct a contest at both Shows and will give away four of our most popular machines as prizes to the winners. These prizes will be:

One Manley 22-ton Press
One Manley 1-ton Portable Crane
One Manley 2-Tank Oil Service
One Manley Engine Stand

The contest at either Show will be distinct from the contest held at the other. Every visitor can have a chance on all four machines given away at the Show which he attends.

Manley equipment is designed and built especially for garage service and conditions. These specialties have been proven great time and labor savers for garage work in all parts of the country. You should be interested in seeing this line and learning how it will enable you to make money in your business.

Our exhibit will be located as follows:

Chicago Show, Space 10-D, Coliseum Basement
New York Show, Space D-198, 4th Floor, Grand Central Palace

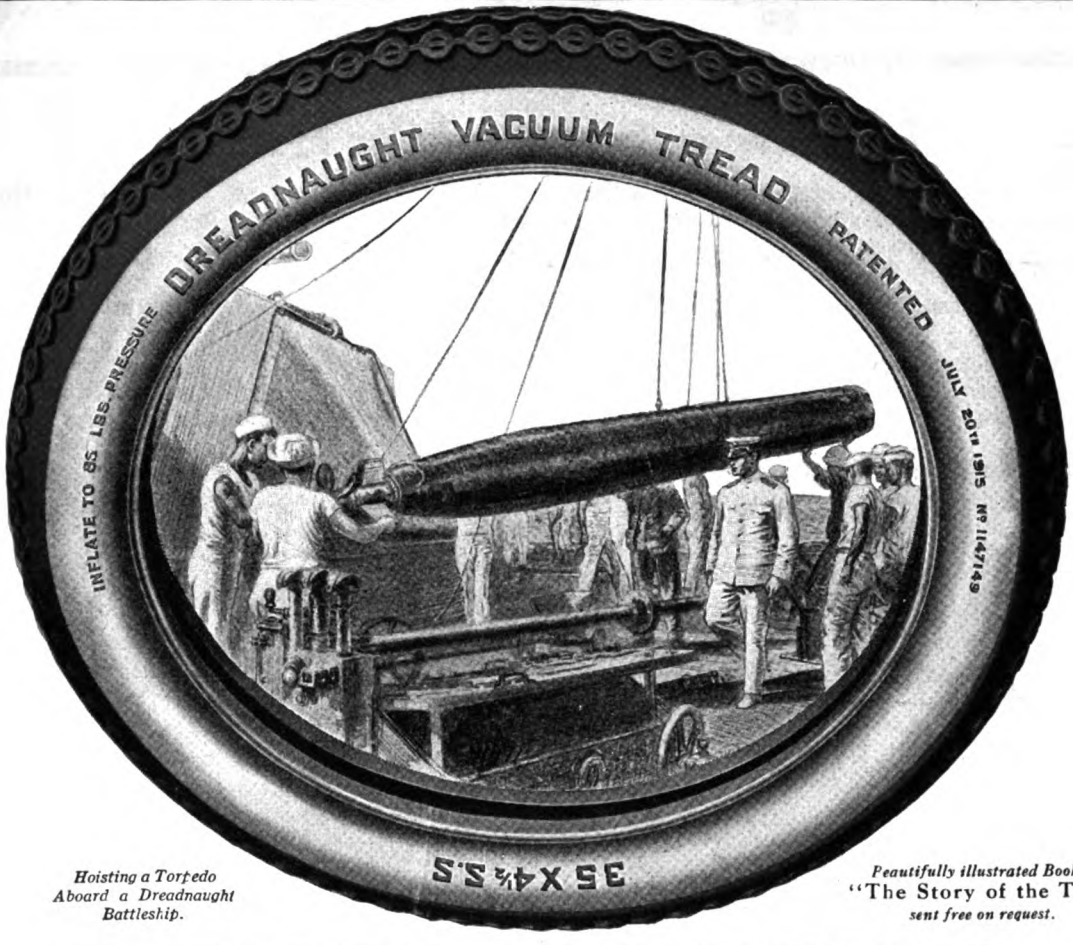
Look us up and remember you may be lucky enough to win the very machine you like best. Don't forget the contest will be on at both Shows.

United Engine & Mfg. Co.
Hanover, Penna.

Four Manley Machines To Winners at Each Show

When writing advertisers please mention Motor World—It identifies you

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Hoisting a Torpedo Aboard a Dreadnaught Battleship.

Beautifully illustrated Booklet "The Story of the Tire" sent free on request.

DREADNAUGHT TIRES

DREADNAUGHT TIRES will be the selling favorites for 1918. Their striking appearance and their extraordinary performance have gained the confidence of motorists from coast to coast—re-sales are easy as **DREADNAUGHT TIRES** never fail to "make good". Dreadnaught dealers and distributors are assured of the patronage of motorists who take pride in the smartness and distinction of their car and who are satisfied only with the best.

5,000 MILES GUARANTEED

DREADNAUGHT TIRES are made in two treads—DREADNAUGHT "Silent" *Vacuum* and DREADNAUGHT *Ribbed.*

SUPER-DREADNAUGHT INNER TUBES retain their elasticity and velvety softness to the last mile. They are generously thick.

MANUFACTURED BY

The Dreadnaught Tire and Rubber Company

Baltimore, Maryland

We have an exceptional proposition for dealers and assure excellent service and territorial protection with intensive co-operation from our organization. Write or wire, Department "E".

CHAS. F. U. KELLY, Inc., *Sales Department* 1834 Broadway, New York

Digitized by Google

Springs Axles Bearings

The Successful Motor Car Heater

IN THEIR third successful year, Perfection Heaters are now standard equipment on more motor cars than all other heaters combined.

These successful heaters stimulate winter sales.

Manufacturers who fail to appreciate this expose their dealers to unnecessarily severe competition.

Dealers may, however, readily supply the deficiency. Perfection Heaters are easily installed in virtually any car.

Perfection Heaters are inexpensive and cost nothing to operate. They utilize the waste heat of the motor and radiate it into the car.

Write for complete catalogue of the several types of Perfection Motor Car Heaters.



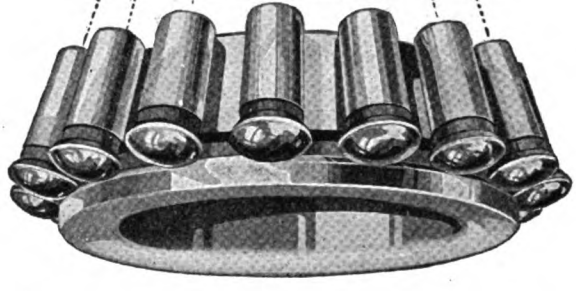
THE STANDARD PARTS CO. CLEVELAND, O.
Rims, Steel Tubing, Motor Car Heaters

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BOCK

Everything Rolls



More Efficient—Stronger—More Durable

HERE are bearings that *really* roll.

Every contact is a *rolling* contact—even the *end* contact.

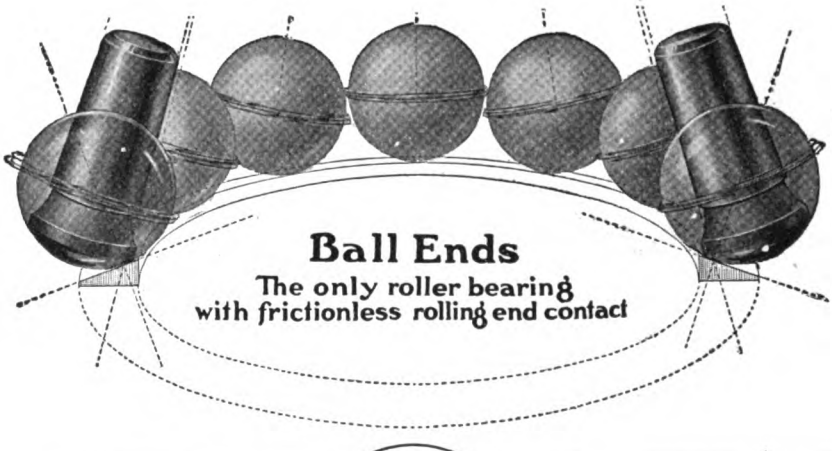
In other roller bearings the ends slide.

That means friction. Also a weaker bearing.

The load-carrying capacity of the Bock is far greater than any other bearing made.

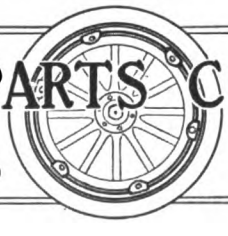
And, of course, being practically frictionless everywhere, they use less power than any other bearing.

For the same reason, they are more durable than any other bearing.



Ball Ends

The only roller bearing with frictionless rolling end contact

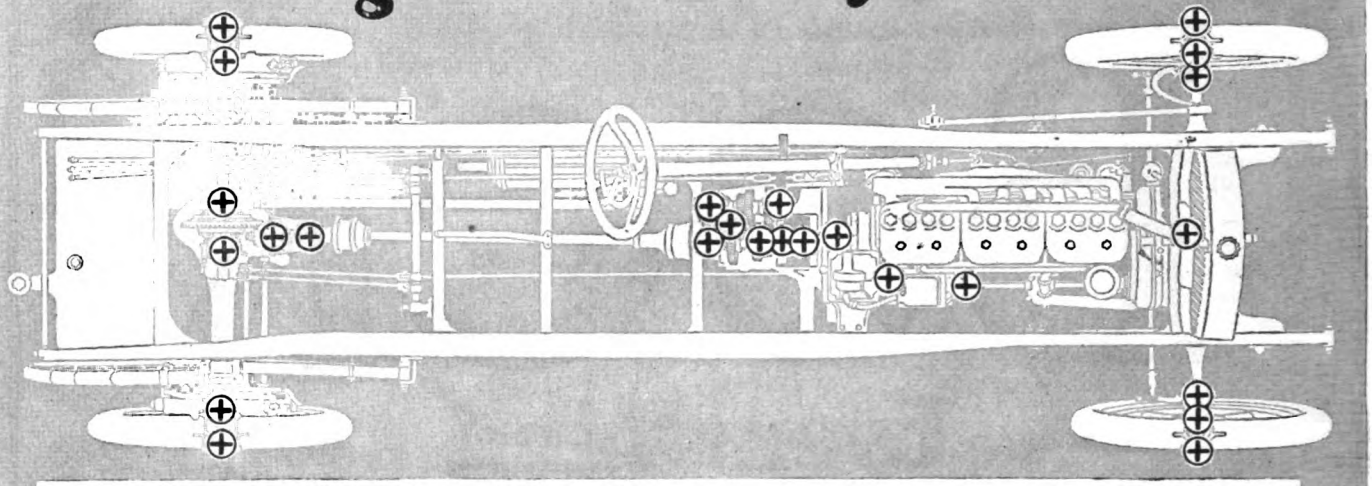


THE STANDARD PARTS CO. CLEVELAND, O.

Rims, Steel Tubing, Motor Car Heaters

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Bearings for Every Location





HYATT





NEW DEPARTURE



TIMKEN

HERE'S THE MEANING OF BEARINGS SERVICE—illustrated by a picture that speaks for itself. It is a service that enables you to secure, at a central distributing point, Timken, Hyatt and New Departure bearings.

Whenever you need a bearing for any particular installation, all you have to tell us is the make, year and model of the car, and the bearing location. We can then supply your wants immediately.

Whether the bearing required is for an "orphan" car or for a recent model, the detailed factory records supplied us by the bearing manufacturers enables us to furnish the proper bearing with absolute accuracy.

We are the exclusive service representatives for Timken, Hyatt and New Departure bearings—with branches located in twenty-two principal cities.

No matter in what part of the country you may be, you can always secure the bearing you need for repair or replacement by getting in touch with our nearest branch.

BEARINGS SERVICE COMPANY

General Offices Detroit, Michigan

Branches In These Cities

New York, Detroit, Chicago, Boston, San Francisco, Los Angeles, Atlanta, Seattle, Minneapolis, Kansas City, Dallas

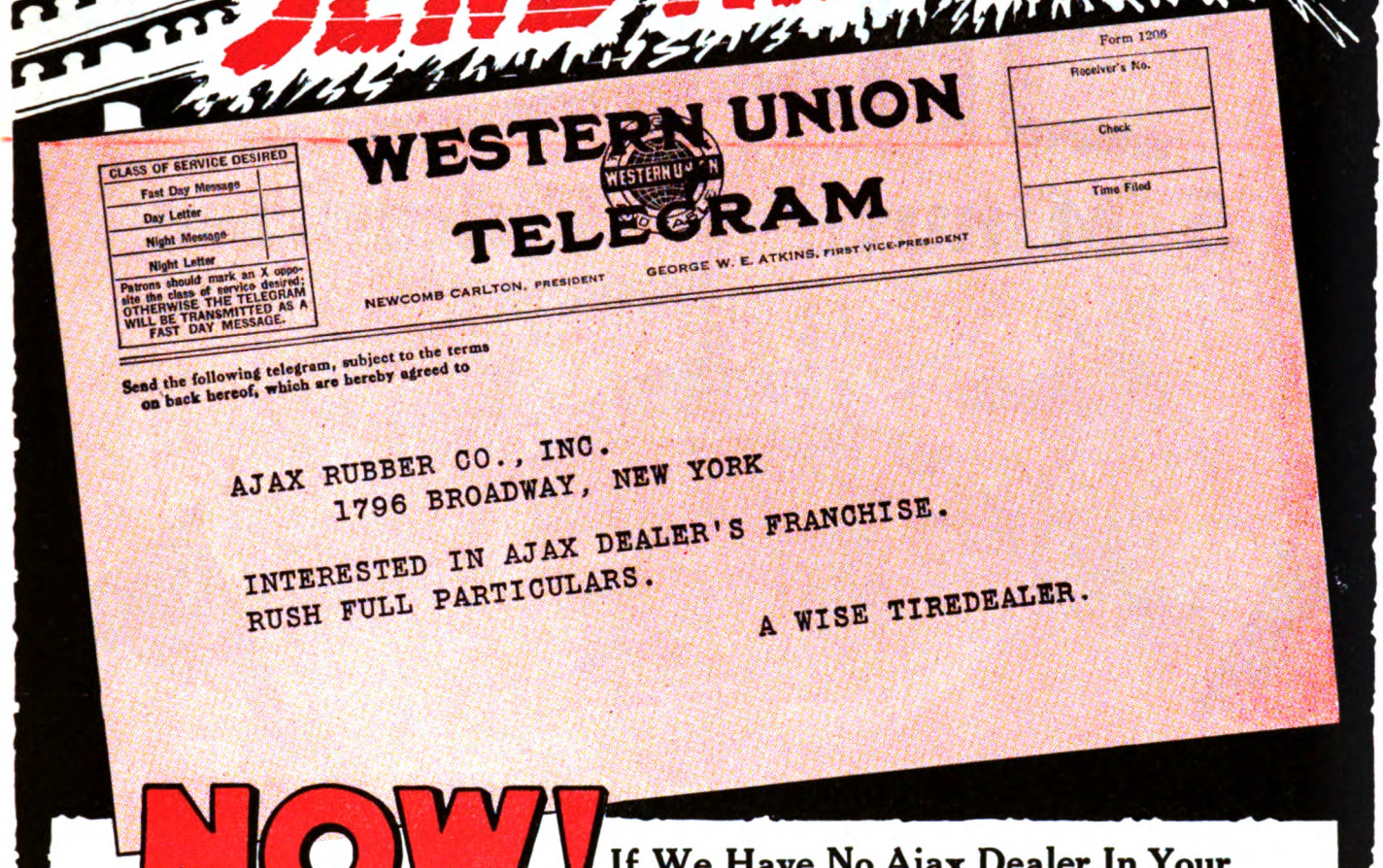
BEARINGS SERVICE COMPANY

Branches In These Cities

Cleveland, Denver, Indianapolis, Philadelphia, St. Louis, New Orleans, Omaha, Pittsburg, Portland, Ore., Toronto, Can., Rochester

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SEND THIS WIRE



NOW! If We Have No Ajax Dealer In Your Territory—Get Complete Facts About

AJAX Dealer's Franchise

DON'T stop to write—wire us COLLECT—if we have no Ajax Franchise Dealer in your neighborhood. ACT NOW—if you want for your own an *exclusive* money-making opportunity unequalled in tire history.

Guaranteed in Writing 5000 Miles

Twelve years ago this in-writing protection to Ajax users was originated. It has been maintained ever since.

Ajax Road King

—a monarch in quality, a democrat in service—has established new records far *in excess* of the written guarantee. It has proved itself a remarkable seller for the dealer.

97% Owners' Choice

Of the total Ajax output 97 per cent goes to individual motorists, singled out by them to take the place of tires that came on their cars.

Ajax Advertising Plans for 1918 are *three times* greater than ever. This means added business for the Ajax Franchise Dealer—new prestige—permanence—for him.

Act Quick!

But the *time is short*. The unusual advantages we offer are bound to mean 100% distribution. The time for *you* to link up with Ajax is right now. Send a copy of the above wire with your name signed, collect. Or write a postal. But get *action—quick action—now.*

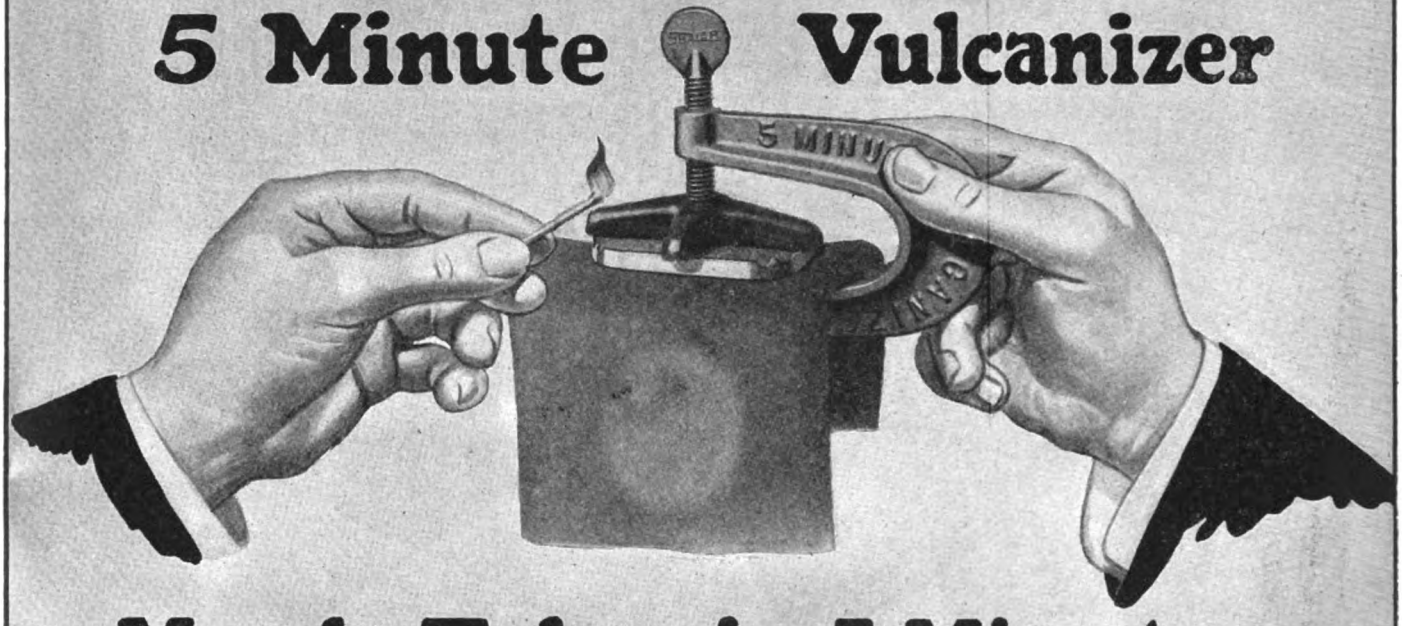
AJAX RUBBER COMPANY, Inc.
1796 Broadway New York

"While Others Are Claiming Quality, We Are Guaranteeing It"

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SHALER

5 Minute Vulcanizer



Mends Tubes in 5 Minutes

Easy to Use—Easy to Sell

Every buyer of a SHALER 5-Minute Vulcanizer becomes a booster! Every motorist who buys one shows it to his friends—gives them a demonstration—because it is such a wonderful thing.

This means big sales for you. As soon as you start selling the SHALER 5-Minute Vulcanizer, your customers will spread the news. You will quickly notice new faces in your store—new customers passing their money across your counters.

Complete Outfit

The dozen patches and combustible discs that go with the vulcanizer are soon used up—and the motorist comes back to you for more. He pays you 75 cents for every dozen of these units. You make a good profit.

With 6 Round and 6 Oblong Patch Units— $1.50

Can you realize what a big repeat business this means for you? Can't you see how it will bring car owners into your place for additional "ammunition"—who will also buy other goods? And that is what you need to build up your business.

Place Your Order With Your Jobber NOW!

Don't delay! The enormous demand for SHALER 5-Minute Vulcanizers has exceeded our factory capacity to make deliveries. We are building a large 3-story addition to our plant. But—to make sure of prompt shipments—place your order with your jobber now—specifying date of shipment desired.

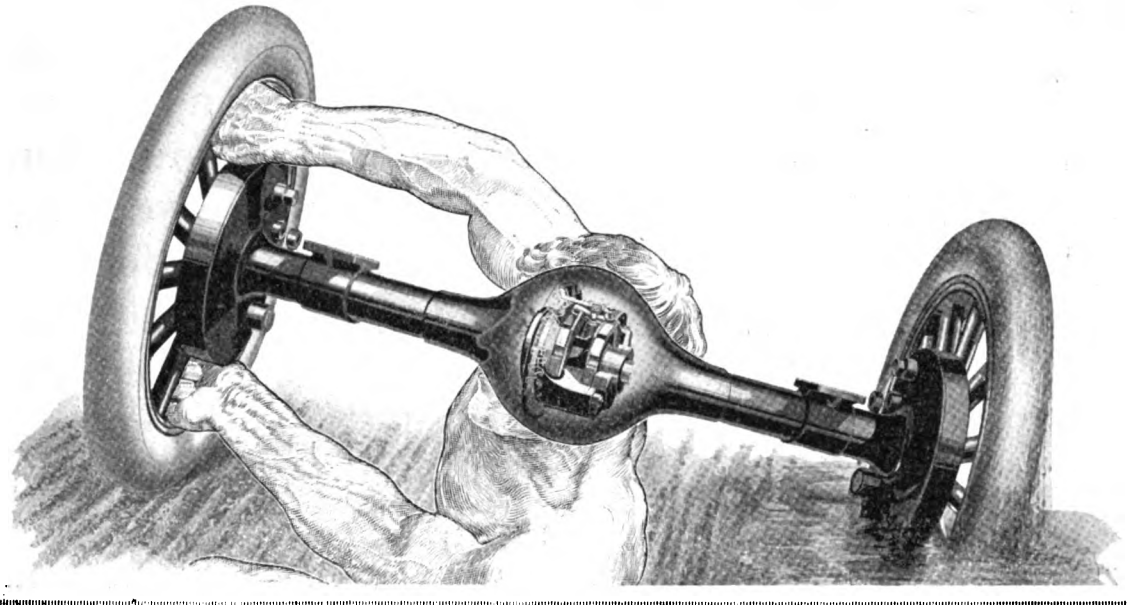
Complete catalog of full line of SHALER Vulcanizers for Motorists, Garages and Repair Shops mailed on request.

C. A. Shaler Company, 401 Fourth Street, Waupun, Wis.

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BAILEY NON-STALL DIFFERENTIAL

Brains in the Rear Axle—Power to the Wheel That Can Use It



A Basic Weakness Corrected

In Automobiles, Trucks and Tractors

Isn't it the logical duty of the differential, think you, to send power to the wheel *with* the traction?

Yet, until the coming of the Bailey Non-Stall Differential, power has been going uselessly to the wheel *without* traction!

Why, no one knows.

Of all the vital parts of a car, truck or tractor, the differential seems to have been the least known, the least improved. A faulty principle was established at the outset and it had never been done away with.

Now the Bailey Non-Stall Differential, a corrected differential, one in keeping with advanced engineering practices, remedies old evils.

Old vs. New

Old-style differentials seemed built for the purpose of wasting power.

The Bailey differential conserves it. Power is directed intelligently and instantly to the wheel that can use it.

Note the pictured description above. The old way would have been to send the power to the wheel in the watery mud. Then the wheel would spin and the car would be stalled. There would be an enormous waste of power. The spinning wheel would grind the tread off the tires.

Frequent accidents result.

The Bailey avoids all these inefficiencies. No power is permitted to go to waste. The wheel *with* the traction, the only one that can help propel, gets the power automatically. Just the opposite from the old way.

The driver has perfect control of his car in all kinds of weather. He is safer, and you know it.

And so, we ask, who would willingly retain the old-time, wasteful, dangerous differentials?

Your Opportunity

A Bailey Non-Stall Differential may be installed quickly in any car. And it appeals to any owner, not only because of its advantages, but its low cost. Any rear axle can be fitted.

Dealers are finding this Bailey Differential a very profitable proposition, and we intend to "break big" in the near future. So those prepared will be the chief profit earners.

Write for details now. This is going to be one of the biggest things in the motor world.

BAILEY NON-STALL DIFFERENTIAL CORPORATION

1124 MICHIGAN AVENUE, CHICAGO

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MOTOR WORLD

Before Show Issue December 26

Every progressive Dealer and Jobber will see your advertisement in this issue of Motor World. He will more than ever appreciate it, and be more than ever likely to consider favorably your proposition.

And he will see it *before* the show—just as he is about to leave home to look over the ground with a view to adding to or changing his lines for the coming season.

Don't miss this opportunity to identify yourself with the progressive, forward-looking elements of the industry, and to place your products before the eyes of the trade at the most important merchandising season of the whole year.

AUTOMOTIVE INDUSTRIES

New York Show Issue January 3

This publication is the admitted leader in its field. It has the implicit confidence of its readers. Advertisements in its pages attract real attention and are given valuable consideration.

If your advertising story will interest Manufacturer, Engineer, Owners and Dealers of the highest class industrially and financially, it should appear in the New York Show Issue of Automotive Industries if it appears nowhere else.

MOTOR AGE

New York Show Issue January 3

Nearly 40,000 Owners, Dealers and Garagemen will read this issue. Will your advertising story be there for them to see?

The advertisements will form a big and valuable part of this number. Owners and Dealers will read them with their minds in the receptive condition produced by Show Time. If you are an Exhibitor, the impression produced by your exhibit is pressed home and perpetuated; if you are not an Exhibitor, you grasp the biggest opportunity to make up that deficiency—by a strong, characteristic advertisement in the pages of Motor Age's Big Show Issue.

START PLANNING YOUR "COPY" NOW—MAKE IT THE BEST YOU'VE GOT IN THE SHOP—AND *GET IT IN EARLY!*

YOU

are confronted this year by a war situation. But, more fortunate than our European contemporaries, we have their experience to guide us.

Judging from that experience, we must remember that the general "state of mind" is of the very first importance to business.

The public is watching us. Our own faith and courage will be reflected in its attitude. The success of next season depends upon YOU, and me, and the rest of us who represent the Motor Car Industry.

Let us join in making the Shows a big success—a success that cannot fail to impress the public with our own faith in the industry, and our anticipation of good business for the coming year!

The CLASS JOURNAL PUBLICATIONS

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NOW

if ever, we must believe in our goods, believe in our Industry, believe in our Country.

And we must **show** this faith in every conceivable way.

There is no better place to make that faith apparent, to make it count for all it is worth, than in your advertisements in the **Trade Papers!**

The Show Issues of the Class Journal Publications are harbingers of the coming season. They are the straws that indicate the wind's direction. From their character, their size, and the degree of optimism conveyed by their contents, that strange, powerful force called "Public Opinion" will take its cue.

Let your advertising story be a strong one, generously set forth, adequately portrayed. Play your part in the progressive policy which is going to carry the Industry triumphantly through to a big successful year.

Before the Shows begin, Dealers and Jobbers all over the country will have the Before-Show Issues of Motor World. Those who attend the Shows will be looking for the goods advertised in that issue.

And those Manufacturers, Dealers and Jobbers who do **not** attend the Shows will have the pages of the big Show Issues of Motor Age and Automotive Industries to tell them what those shows mean to the trade.

Your attendance at the Show, your exhibits at the Show, your interest in and expectation of what the Show will do for you, is only half realized if you do not hook all these things up with strong, well displayed advertising in the Class Journal Publications—Automotive Industries, Motor World, and Motor Age.

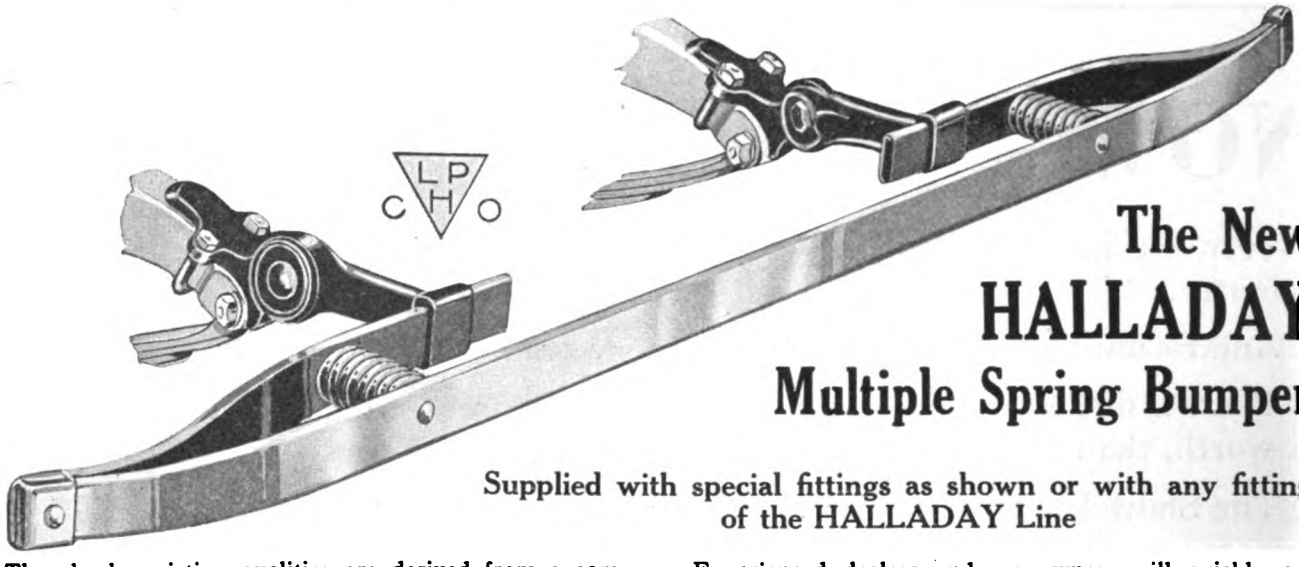
GET YOUR "COPY" IN EARLY!
DO IT NOW!!

The CLASS JOURNAL COMPANY

239 West 39th Street, New York **Mallers Building, Chicago**

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The High Water Mark in Bumper Efficiency



The New HALLADAY Multiple Spring Bumper

Supplied with special fittings as shown or with any fitting of the HALLADAY Line

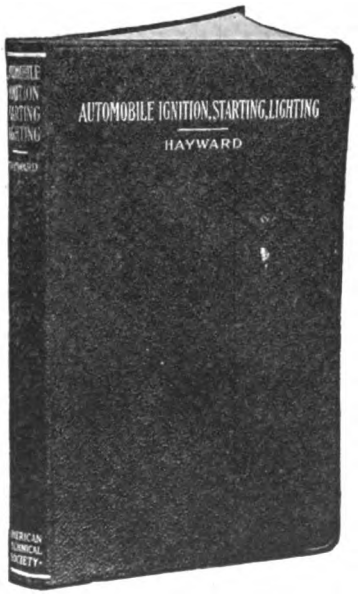
The shock resisting qualities are derived from a combination of three steel spring bars and two heavy spiral spring buffers. The spring ends are joined by a flexible connection which eliminates breakage at this point.

Experienced dealers and car owners will quickly appreciate the enormous strength and efficiency of this bumper and the wise ones will get busy.

DISTRIBUTED THROUGH REGULAR CHANNELS

L. P. HALLADAY COMPANY, Streator, Illinois

Distributors: Asch & Co., 16-24 W. 61st Street, New York City; E. L. Thompson Co., 817 Boylston Street, Boston, Mass.; Gray-Heath Co., 1440 Michigan Avenue, Chicago, Illinois; Sanford Brothers, Chattanooga, Ten., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.



761 pages, 481 illustrations
Flexible leather, gold stamped
$2.50 *Postpaid*

Automobile Ignition, Starting and Lighting

WITH QUESTIONS AND ANSWERS

By CHARLES B. HAYWARD

A comprehensive analysis of the complete electrical equipment of the modern automobile, including many wiring diagrams and details of all the important starting-lighting systems.

Some of the Principal Subjects Treated

Elementary Electrical Principles. The Electric Circuit, Magnetism, Induction Principles in Generators and Motors.

Ignition. Fundamental Ignition Principles, Sources of Current, Ignition Systems (Dual, Duplex, Double Spark, Ford Magnets), Spark Timing, Modern Battery Ignition Systems, Testing, Adjustment and Maintenance; Summary of Ignition Instructions (Questions and Answers).

Electric Starting and Lighting Systems. General Features, Lighting Equipment, Practical Analysis of Types with Wiring Diagrams, including Auto-Lite, Bijur, Delco, Gray and Davis, Remy, U. S. L. Wagner, etc.; Summary of Instruction on Electric Starting and Lighting (Questions and Answers).

It is the most illuminating and instructive work of its kind ever published. Indispensable to the novice and the expert.

Pocket size, 5½ by 8¾—761 pages—481 wiring diagrams and illustrations. Flexible leather, gold stamped.

U. P. C. BOOK COMPANY, Inc.

Successor to Class Journal Co., Book Dept. 241-249 West 39th Street, New York

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REG. U.S. PAT. OFF.

GTD

Look for the GTD trade mark when you want the best Taps and Dies

Every garage and repair shop should be equipped with "LITTLE GIANT" Combination Screw Plates. Furnished both in U.S. and S.A.E. Standards.

Each die is contained in its own collet and adjusted to size. There is also a Bit Brace Die Holder for cleaning up battered threads in out-of-the-way places.



If you are a manufacturer, garage or repairman—or a car owner who makes his own repairs—you can be supplied from our big established line.

Write today for the No. 37 Catalog

Greenfield Tap & Die Corporation

Greenfield Mass.

New York, 28 Warren St.
Chicago, 13 S. Clinton St.
Canadian Factory: Wells Brothers Co. of Canada, Ltd., Galt, Ontario.



CURTIS AIR FREE FROM OIL

The Curtis Compressor is the only one designed to prevent flooding the cylinder with more oil than it needs for lubrication. This, because of our controlled-splash oiling system. No excess oil is forced into the air line. **Oil ruins tires**—air free from oil means fewer blowouts and increased mileage all around for your customers, with less tire adjustments to you. Make your place the most popular one in town. An easy and inexpensive way, is to install a Curtis Compressor. The customer assumes if you have the best free air service, you will have the best service in all departments.

Costs No More Than Ordinary Compressors—But Note The Difference

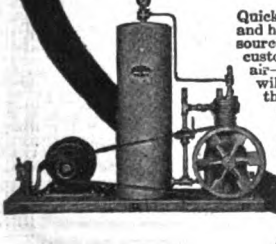
Live garages and service stations are using Curtis Air Compressors. Motorists expect free air service. Why not give them the best and win over new customers by supplying, not only reliable air service, but **Curtis Air—Free From Oil.** A poor air system which shoots oil into the tires, or which is unreliable, drives customers away. Thousands of Curtis Outfits are rendering daily, effective, efficient service all over the country. Your Curtis Compressor can further pay for itself by supplying air for air hoists, painting, cleaning, vulcanizing, blowing dust and drillings from tools, and many other things. Curtis Compressors are backed by manufacturers who have been specialists in this line for twenty-five years.



10 Combinations of Compressor and Tank Sizes—Any Current

Five Sizes—Tight Pulley Only, or Tight and Loose Pulley

11 Combinations of Compressor and Tank Sizes—Any Current



Makes New Customers—Holds Old Ones

Quickly pays for itself in bringing in new trade and holding the old trade, for it not only is the source of a dependable supply of air when your customers want it, but it also supplies clean, cool air—free from oil. Motorists realize that oil will quickly destroy their inner tubes, and, therefore, look for a station that supplies Curtis Air—Free From Oil.

Curtis Compressors are built to meet the requirements of your business in sizes, arrangements and prices. Send coupon at once for full information and attractive prices. It will pay you to investigate our proposition. *Write us today, or ask your jobber for prices—but insist on a Curtis.*

Winter Business—Cold Weather Made Profitable

Curtis Pneumatic Machinery Co.

1546 Kienlen Avenue St. Louis, Mo.
Hudson Terminal, New York

Curtis Pneumatic Machinery Co.

1546 Kienlen Ave. St. Louis, Mo,

Gentlemen: Please send me full details regarding Curtis Garage Air Compressor—your proposition and low prices.

Name.....

Address.....

Jobber's Name.....

Address.....

Digitized by Google



How Would You Like to Sell a Fleet Like This?

SELLERS of motor trucks—your biggest year is looming up ahead! Never has the outlook been so full of possibilities.

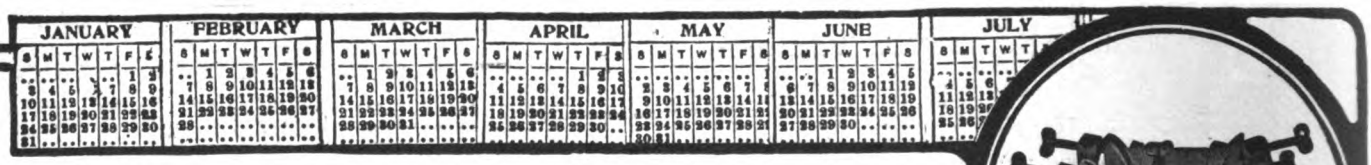
The Government, the railroads, and the express companies join in warning the public to prepare for car shortages and freight congestion in the months to come. Four of the largest express companies, in a joint pamphlet of warning and advice, say, *"It is also requested that freight service and motor trucks be used for the short haul traffic in and around congested districts."*

INTERNATIONAL MOTOR TRUCKS are filling the breach on every hand. Far-sighted dealers are placing Internationals in increasing numbers with far-sighted business men. One large corporation is already using 600 Internationals. Dealers will find sales coming still faster as the situation becomes more and more serious.

INTERNATIONAL MOTOR TRUCKS meet the needs of any and every firm with transportation problems to solve, in 1500, 2000, 3000 and 4000-pound capacity sizes, at prices ranging from $1450 to $2550 for the chassis (f.o.b. factory) with suitable bodies for every business. You know International standards and reputation—but have you seen the new 2-ton Model G?

We offer this line of International Motor Trucks as a most profitable dealer opportunity. The time is ripe for easy selling. Your territory may still be open. If it is, get an International contract. Write today for full information.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
(INCORPORATED)
155 HARVESTER BUILDING CHICAGO U S A

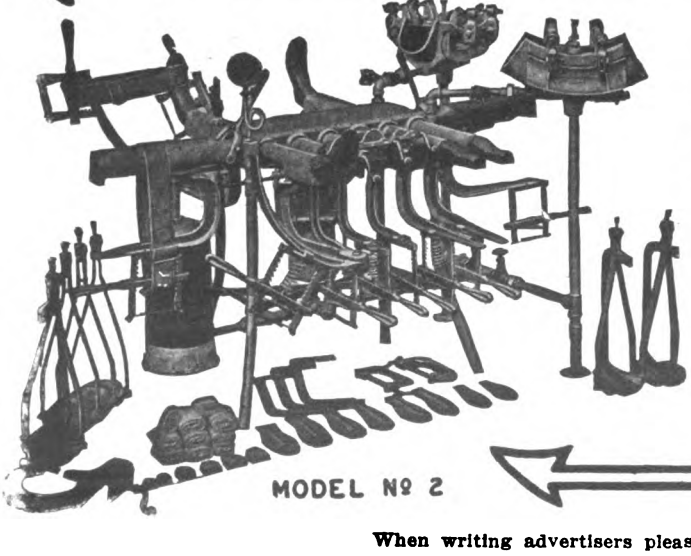


AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.



THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER

is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue.

THE ARTHUR VULCANIZING MACHINE COMPANY

Griswold St. Warren, Ohio



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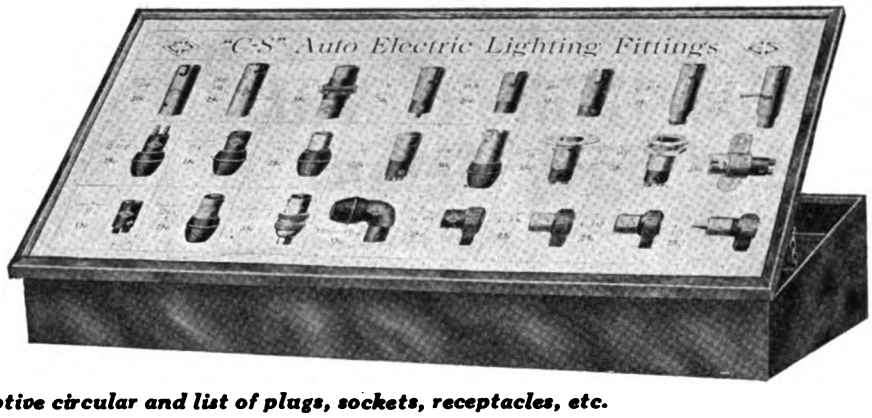
CULVER-STEARNS DISPLAY CABINET

C-S MFG. CO.

The ideal "Silent Salesman" for the Dealer and Garageman.

Shows full size illustrations of what it contains. Catalogue numbers and selling prices are plainly marked and it also has a locking device.

This Display Cabinet is given free with our standard assortment of fittings which list at $34.00.



Send for descriptive circular and list of plugs, sockets, receptacles, etc.

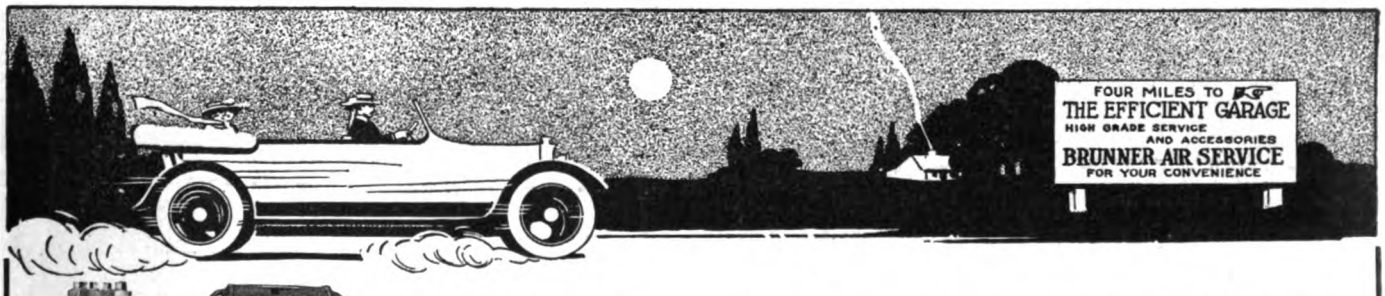
CULVER-STEARNS MFG. CO.

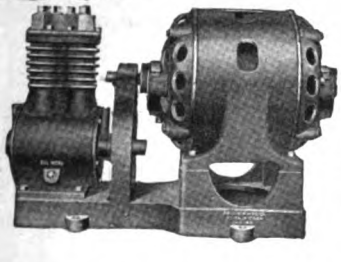
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92-7





The motorist who drives his car during the winter months knows that the severe jolts and jars his tires are subjected to on the frozen ruts and ridges of the roads during the winter necessitate even more careful tire inflation than during the summer months, and he favors Brunner Air Service because he knows it is a dependable and efficient service.

Investigate the* BRUNNER *Air Compressor

If you do not find the Brunner Line in your jobber's catalogue we will be glad to send you the name of the Brunner Jobber covering your territory and one of our complete catalogues and Garageman's Handbooks on Compressed Air.



BRUNNER MANUFACTURING COMPANY

Main Office and Plant
UTICA, NEW YORK

Cincinnati Branch
CINCINNATI, OHIO



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From White to Red and Back Again!

JUST as fast as you can press the button on a Red Spot Searchlight the powerful white beam is changed to a red danger signal that protects you and your car at night—when changing tires; turning; crossing or stopping in traffic. You get the advantages of a first-class searchlight and the protection of an effective danger signal combined in one searchlight—for the price of *one*.

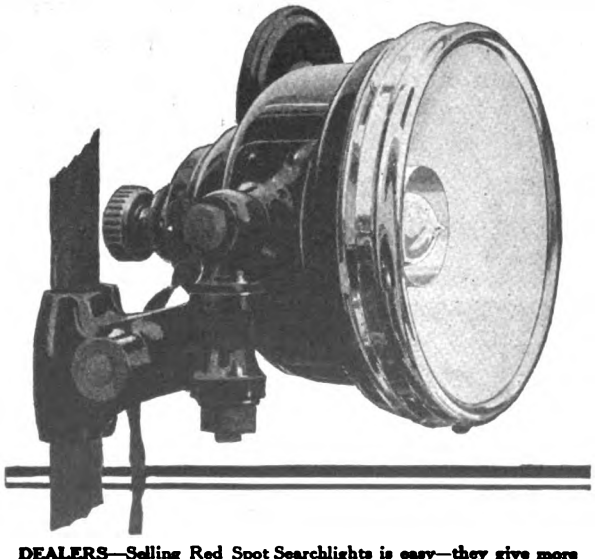
And the Red Spot Searchlight is a *good* searchlight—thoughtfully designed, carefully built and handsomely finished.

Parabolic reflector is brass—not steel—heavily coppered and silver-plated. Adjustable mirror gives accurate rear view irrespective of position of searchlight. Adjustable focus—concentrated beam or diffused light, no glare. Switch in handle, socket, lamp and red cylinder removable in one unit without risk of damaging reflector. Weather-tight, dust-tight glass and bezel. Universal bracket—directs searchlight in any direction. AND HOLDS IT THERE WITHOUT RATTLE.

Get all the searchlight value your money will buy—ask for and get a Red Spot Searchlight—it fits your car as if made for it and you do not pay more for the added Red Spot features.

RED SPOT SEARCHLIGHT (Complete) **$7.00**
RED SPOT (without mirror) - - **6.50**

The F. W. Wakefield Brass Company
10 Wakefield Street *Vermilion, Ohio*

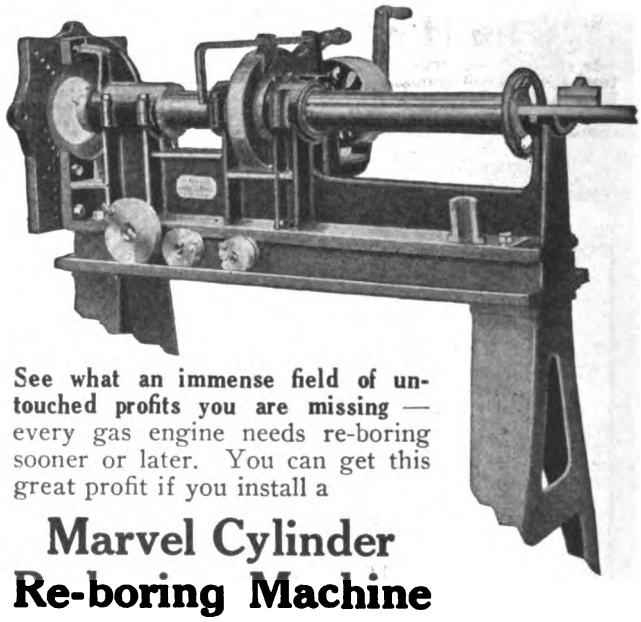


DEALERS—Selling Red Spot Searchlights is easy—they give more for no more money. Send for illustrated folder and terms to dealers.

District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available about Jan. 1. Established business with jobbers and garages awaits a few high grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.



See what an immense field of untouched profits you are missing — every gas engine needs re-boring sooner or later. You can get this great profit if you install a

Marvel Cylinder Re-boring Machine

The only device that will do the work and bring you the profit—no other like it for *speed, accuracy, simplicity* of *operation* and *general efficiency.*

Will re-bore any block, 2½" to 8" in diameter, perfectly round and without taper, accurate to less than .001 of an inch.

Write for particulars and about the accurate fitting pistons we supply.

MARVEL MACHINERY CO.
1305 S. Third St., Minneapolis, Minn.

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Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. Why not cash in on this opportunity? Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. Six years of Haywood's advertising has standardized the Haywood method.

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollar on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—are easily operated—no experience necessary. Here is your opportunity to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. It completes your service—a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.
1042 N. Capitol Ave., Indianapolis, Ind.

Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

Name .....

Address .....

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DAYTON

QUICK DETACHABLE WIRE WHEELS

MADE UNDER LICENSE

For Ford and Chevrolet Cars

Quick Change and Economy

Dayton Wire Wheels appeal to the conservative owner because of the wonderful resiliency which gives 25% more tire mileage and lengthens the life of the car proportionately. The quick change feature of "Daytons" represents a definite saving of time to the busy man, as well as a matter of comfort when a tire change becomes necessary in zero weather.

To change a tire the complete wheel is changed so that it is merely necessary to unscrew and replace the hub cap. The spare wheel is carried with the tire inflated, ready for instant mounting. Furnished in any desired color. "Daytons" add the last touch of elegance to the Sedan and Coupelet for winter use.

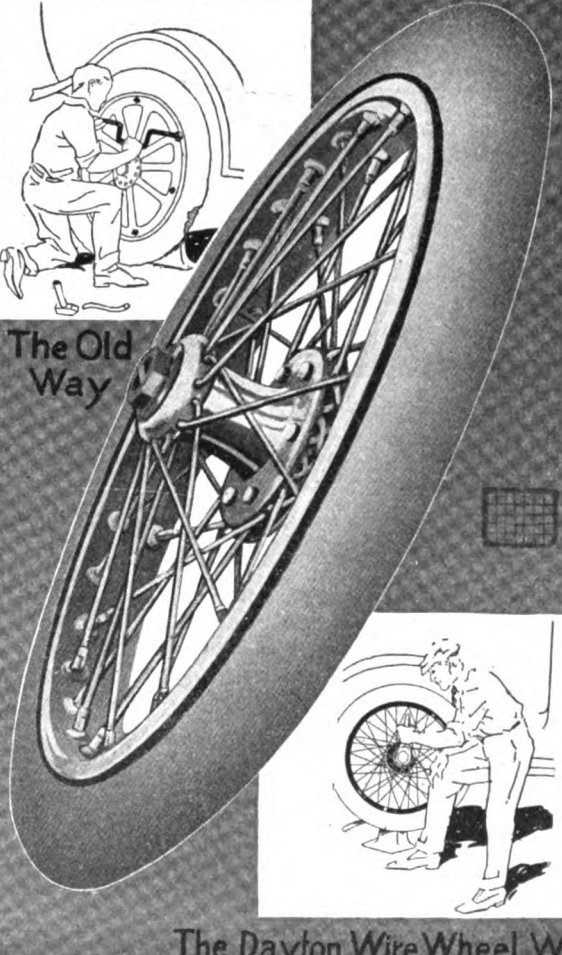
DEALERS AND JOBBERS

Dayton Wire Wheels insure more winter sales, more profits and more satisfied customers. Order to-day.

Deliveries Now!

THE DAYTON WIRE WHEEL CO.
826 Miami Road, DAYTON, OHIO

The Old Way



The Dayton Wire Wheel Way

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Steer Warms For Winter Driving



Draw Trade To Dealers

National advertising has put Steer Warms on the driving wheels of thousands of cars and trucks all over the country where the weather gets cold enough to make winter motoring uncomfortable without these wonderful hand-warmers. Wide-awake dealers are finding it good business to have Steer Warms in stock. They sell on sight—at a good profit. And they draw trade for other accessories and supplies.

Warm Hands In Zero Weather

That's what Steer Warms insure; and "warm hands" mean "warm all over" and absolute comfort in winter driving. Steer Warms ward off colds; keep the fingers limber and the grip firmer, making for safer driving; and they save money on gloves.

Guaranteed For 5 Years

Steer Warms are guaranteed against burn-out for five years; and are guaranteed in every other way. Dealers authorized to refund money if Steer Warms fail to do anything we claim for them.

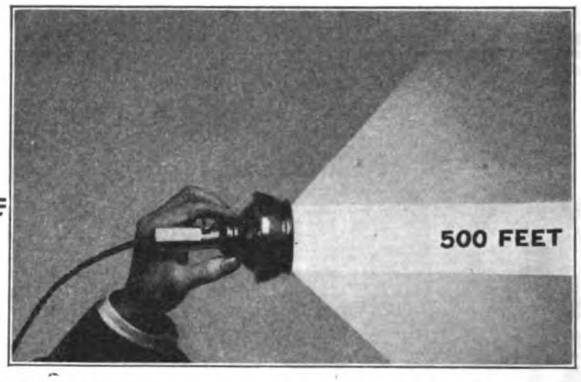
Prices Small

The retail prices of Steer Warms are: for all gasoline cars, $7.50 (in Canada, $11); special for Ford cars, $5 (in Canada, $7.25). Anybody owning a car or truck can afford Steer Warms. Every dealer in cold-weather territory should have them in stock.

Interstate Electric Co.

Sole Manufacturers

846 Perdido Street New Orleans, U. S. A.



The CELLBEAM Concealed Spot Lamp Solves the Searchlight Problem

This compact electric searchlight is an exceptionally powerful projector of both spot and diffusive illumination. The concentrated beam of projected light extends 500 feet, while objects close at hand are illuminated by a diffusive glow of indirect and transmitted light, devoid of the annoying direct filament glare.

As a light accessory of style and convenience, strictly complying with the law, pertaining to the utmost in safety, the CELLBEAM SEARCHLIGHT represents the newest optical development. (Pat. November 6th, 1917, No. 1245512.)

This advanced art in motor illumination provides not only a powerful main beam, but a non-glare general illumination as well.

Furthermore it is no longer necessary to clamp a projector to the wind shield thru some fanciful bracket. The precise dimensions of the CELLBEAM are such as to permit the concealment of the lamp in the side door pockets of an automobile. Wiring is as usual, to the battery cells, following the door hinges of the car.

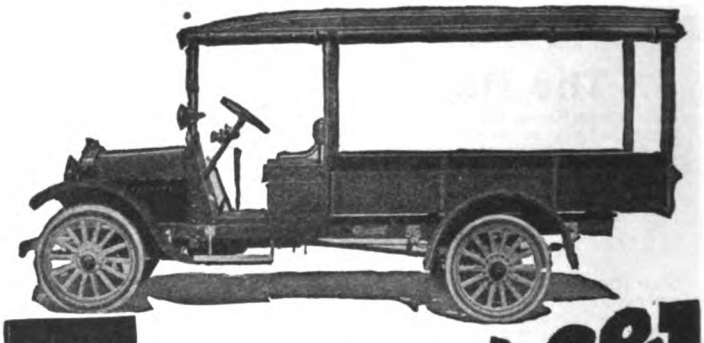
All lamps are hand patterned to steel dies; finished in polished nickel; silvered reflectors; high grade switch included in handle; external focusing adjustment; five feet flexible cord; standard 6 V. nitrogen bulb. Other voltage to fit any electric current source supplied upon request.

Lamp in Every Respect Complete

Price $8

CELLBEAM MANUFACTURING CO.

1101 Bedford Avenue BROOKLYN, N. Y.



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company

DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

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WILLIAMS'
SILVERBEAM
SEARCHLIGHTS
SELL

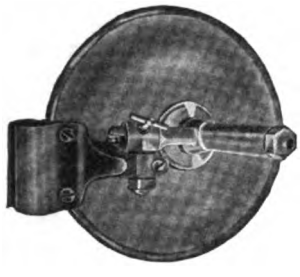
More readily than lower priced lamps when side by side on the dealer's counter, because they are

HANDSOME—Designed on beautiful lines, in harmony with the refined fittings demanded in the modern motor car.

WELL MADE—Superior workmanship showing at every point. Anti-rattling, heavy plating, baked enamel, connections complete.

PORTABLE—Readily detached to serve as trouble lamp—ten feet of cord gives easy access to every part of car.

LAW COMPLYING—The Williams locking bracket guards against infraction of laws regulating elevation ahead.



SILVERBEAM

$9.00 Baked enamel and nickel, in black or colors, convex lens, 6-inch reflector. With 7-inch reflector $10.00

Proven by three years' satisfactory service

Liberal Dealer Discounts

At All Jobbers, or Write

Williams Mfg. Co.
310 N. Flower, Santa Ana, Cal.

At The Show

Don't Fail to See the Exhibit of

WONDER SEAL

RESERVATION D-205, FOURTH FLOOR

Makes tires last longer—absolutely prevents punctures or air leaks, and makes easy mending of worst blowouts.

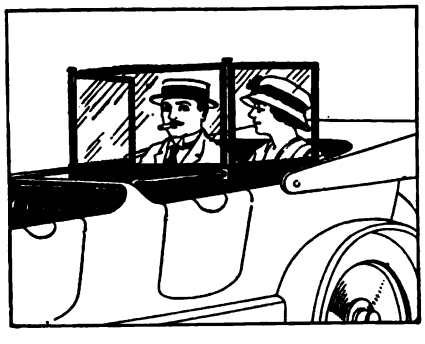
USED AND ENDORSED BY NEW YORK STATE AUTOMOBILE BUREAU, AND MANY LEADING CAR DEALERS

For full particulars, address the

WONDER SEAL COMPANY
1789 BROADWAY, NEW YORK CITY



Every Open Car Owner is a Prospect



The Opportunity for Sales is Enormous

Right Now

the J. H. Tonneau Shield offers the one big proposition of the hour for dealer profits. Consider its remarkable utility—

J. H. Tonneau Shield

It protects the rear seat—the ladies and guests always sit there—no veils or goggles necessary: wind, dust, rain, snow—all are kept away. In conjunction with top and curtains, it provides limousine comfort. When not in use it folds down and takes no more room than a robe. Furthermore it is adjustable and may be placed close up or further forward and wherever placed remains firm and will not rattle.

Thoroughly tried and perfected—not new. Adaptable for use on any car—it is simple, durable, dependable, handsome in appearance and easily installed. Waterproof apron at bottom keeps robes dry. Beautifully finished frame—fine quality glass.

The price is reasonable.

Don't miss this—Dealers—Write today.

J. H. TONNEAU SHIELD COMPANY
1777 BROADWAY NEW YORK

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Latest and Best Automobile Books

By Victor W. Page, M. E.

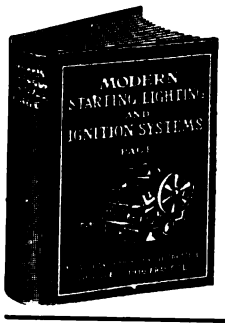
The Model T Ford Car, Its Construction, Operation and Repair

By Victor W. Pagé, M.E.

This is a complete instruction book. All parts of the Ford Model T Car are described and illustrated; the construction is fully described and operating principles made clear to everyone. Every Ford owner needs this practical book. New edition. 75 illustrations, 200 pages. Large folding plate.

Price, $1.00.

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By Victor W. Pagé.

A practical treatise on modern starting and ignition system practice. Includes a complete exposition of storage battery construction, care and repair. Explains all types of starting motors—generators—magnetos and all ignition or lighting system units. Considers the systems of cars already in use as well as those that are to come in 1917. A book every one needs. Nothing has been omitted, no details have been slighted. A book you cannot afford to be without.

Nearly 500 pages. 297 Specially Made Engravings. 1917 Edition. Price, $1.50.

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By Victor W. Pagé, M.E.

A thoroughly practical book containing complete directions for making repairs to all parts of the motor car mechanism. Written in a thorough but non-technical manner. Will be found of special value to garage-men, chauffeurs and automobile mechanics; it also contains a mass of general information that will be of equal value to the motorist who takes care of his own car.

This book contains special instructions on electric starting, lighting and ignition systems. Tire repairing and rebuilding. Autogenous welding. Brazing and soldering. Heat treatment of steel. Latest timing practice. Eight and twelve-cylinder motors, etc., etc. A guide to greater mechanical efficiency for all repairmen.

1,000 Specially Made Engravings on 500 Plates. 1,056 Pages (5½ x 8), 11 Folding Plates. 1917 Edition. Price, $3.00.

How to Run an Automobile

By Victor W. Pagé, M.S.A.E.

This treatise gives concise instructions for starting and running all makes of gasoline automobiles, how to care for them, and gives distinctive features of control. Describes every step for shifting gears, controlling engines, etc. Thoroughly illustrated.

Price, $1.00 net.

The Modern Gasoline Automobile

By Victor W. Pagé.

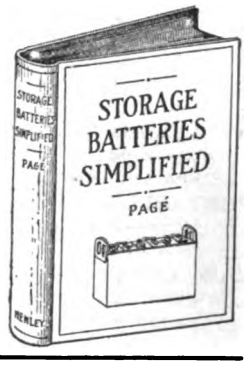
The most complete treatise on the gasoline automobile ever issued. Written in simple language by a recognized authority familiar with every branch of the automobile industry. Free from technical terms. Everything is explained so simply that anyone of ordinary intelligence may gain a comprehensive knowledge of the gasoline automobile. The information is up to date and includes, in addition to an exposition of principles of construction and description of all types of automobiles and their components, valuable money-saving hints on the care and operation of motor cars propelled by internal combustion engines.

The book tells you just what to do, how and when to do it. Nothing has been omitted, no detail has been slighted.

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This is the most up-to-date book on this subject. Describes fully the Exide, Edison, Gould, Willard, U. S. L. and other storage battery forms in the types best suited for automobile, stationary and marine work. Nothing of importance has been omitted that the reader should know about the practical operation and care of storage batteries. No details have been slighted. The instructions for charging and care have been made as simple as possible. 250 pages. Very fully illustrated.

Price, $1.50.

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Arranged By Victor W. Pagé, M.S.A.E.

This book is not only valuable as a convenient cost record, but contains much information of value to motorists. Includes a condensed digest of auto laws of all States, a lubrication schedule, hints for care of storage battery and care of tires, location of road troubles in all parts of the car, anti-freezing solutions, horse-power table, driving hints and many useful tables and recipes of interest to all motorists. Not a technical book in any sense of the word, but a collection of practical facts in simple language for the everyday motorist.

Convenient pocket size, handsomely bound in limp leatherette cover. Price, $1.00.

Automobile Questions and Answers

By Victor W. Pagé.



This practical treatise consists of a series of thirty-seven lessons covering well over 2,000 questions and their answers on the automobile, its construction, operation and repair. The subject matter is absolutely correct and explained in simple language. If you can't answer all of the following questions you need this work. The answers to these and 2,000 more are to be found in its pages.

Give the names of all important parts of an automobile and describe their functions. Describe action of latest types of kerosene carburetors. What is the difference between a "double" ignition system and a "dual" ignition system? Name parts of an induction coil. How are valves timed? What is an electric motor starter, and how does it work? What are advantages of worm drive gearing? Name all important types of ball and roller bearings, etc., etc.

650 Pages. 350 Illustrations and Plates. 1917 Edition. Price, $1.50.

Location of Gasoline Engine Troubles Made Easy

This chart shows clearly all parts of a typical four-cylinder gasoline engine of the four-cycle type. It outlines distinctly all parts liable to give trouble and also details the derangements apt to interfere with smooth engine operation.

It simplifies location of all engine troubles, and while it will prove invaluable to the novice, it can be used to advantage by the more expert. This sectional view of engine is a complete review of all motor troubles. It is prepared by a practical motorist for all who motor. More information for the money than ever before offered. No details omitted. Size 25 x 38 inches. Securely mailed on receipt of

Price 25 cents.

Any of these books sent prepaid on receipt of price, or a special circular of all our Automobile Books and Charts sent on request.

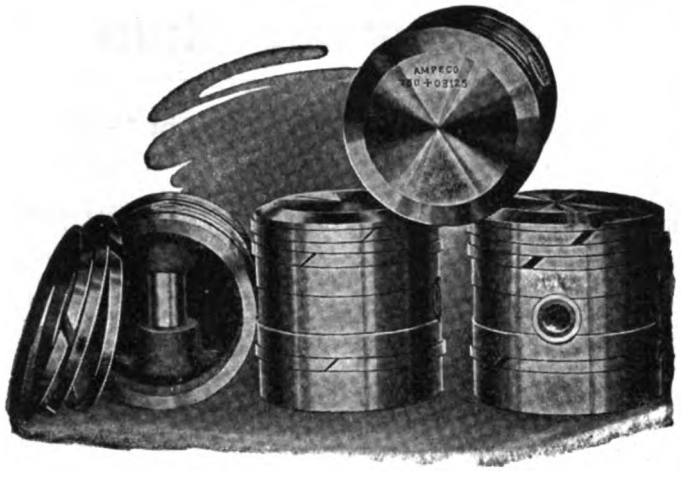
U. P. C. BOOK CO.

239 West 39th St., N. Y.

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Fords Converted Into Trucks and Tractors Can Now Use

"AMPECO" PISTONS



FOR EVERY FORD CAR IN SERVICE

Better running trucks and tractors that pay, smoother running passenger cars that skim along easily under every load, inevitably follow when you install "AMPECO" light weight, evenly balanced pistons in your Ford. Overcome main bearing troubles, give increased power and greater speed. Found always in the most efficient motors on Ford cars.

Use "AMPECO" Pistons and You Use The Best

AMERICAN MACHINE PRODUCTS CO.
MARSHALLTOWN IOWA

Exclusive Sales Agents—**Fulton Sales Company,** Suite 1100, 910 South Michigan Blvd., Chicago, Illinois

You Can Sometimes



Do a good bit of work with inferior tools, but it is not a paying proposition, especially when good tools are far cheaper, production considered.

"MORSE" DRILLS

will make holes for you quickly and accurately, will save you time and money and will help you build a reputation for satisfactory work.

Catalog on request.

Morse Twist Drill & Mach. Co.
New Bedford, Mass.

MOTOR AGE

"The Motoring Authority of America"

Published weekly from Chicago. Central location and frequent issue ensure getting news to dealers without delay. Edited from the car owner's viewpoint. None the less invaluable to high-grade dealers interested in the latest news and advertising announcements to keep abreast of the times and competition.

Accepted as authority by the most successful, progressive and best-known dealers in America. Sample copy sent to interested dealer. Write

MOTOR AGE
Mallers Building Chicago, Ill.



KEYSTONE SHOCK ABSORBERS

Ask us to send you a set of these, along with descriptive booklet and dealer proposition —if you are selling automobile accessories.

Dandy profits for dealers.

STEEL CITY ELECTRIC CO.
1207-19 Columbus Ave., Pittsburgh, Pa.

HENNEY Commercial Bodies

Favored by Ford Owners

Our 1917 line of Henney Commercial Bodies is a "hummer"—by long odds the completest and most attractive ever offered to the auto trade.

We have also added a full line of Henney Truck Bodies for the New One-Ton Ford Truck and regular Ford Chassis.

Better let us write you about our attractive dealer offer, our open territory, quick delivery service and effective selling help. Illustrated Catalog showing the full Henney Line sent on request. Write for it. Address sales office or nearest branch.

HENNEY BUGGY Branch of Moline Plow Co.

Sold for cash direct from factory to dealer at prices that overcome competition

Sales Office: MOLINE, ILL.

Factory: FREEPORT, ILL.

Our line includes Commercial Fenders needed on every commercial car.



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Edward A. Cassidy Co.
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Demountable Rims

Plain Clincher and All Styles of Q. D. Demountables, Straight Side or Clincher

Controlling Perlman Demountable Rim Patents

HAYNES
"Light Six" $1595
"Light Twelve" $2095
AMERICA'S FIRST CAR

Reputation
Product
Publicity

Haynes enjoys a world-wide reputation for building long-lived cars of low upkeep. We intend that, during our *25th Successful Year*, Haynes dealers shall cash in on Haynes reputation to an even *greater* extent. Write

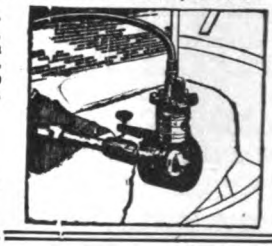
THE HAYNES AUTOMOBILE CO.
70 So. Main St. Kokomo, Ind

GEARLESS DETROIT CRANK-SHAFT Tire Pump
Pat. Aug. 25, 1915

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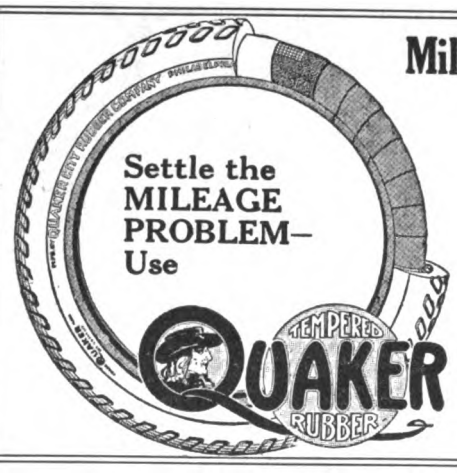
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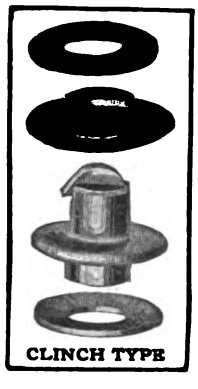
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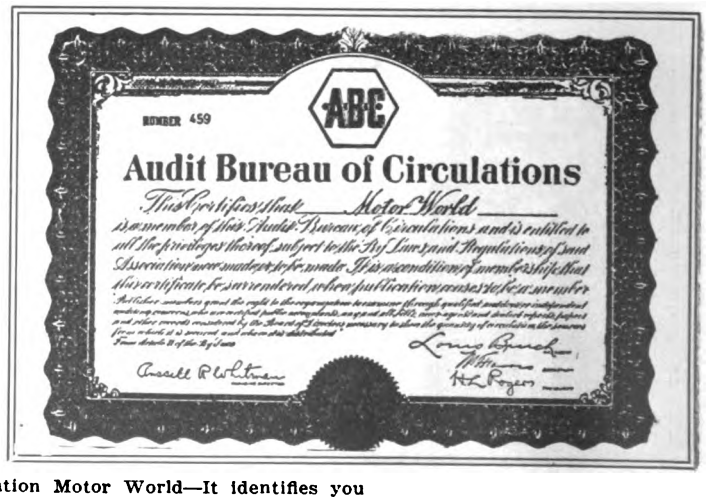
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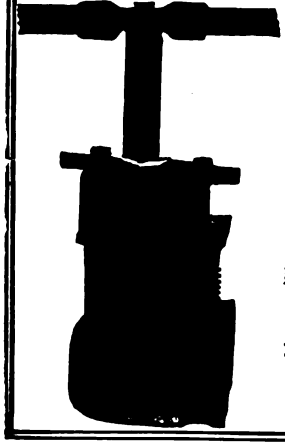
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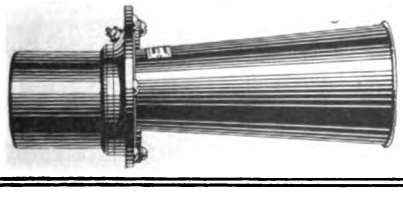
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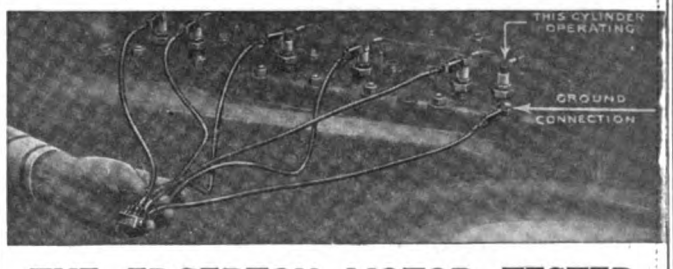
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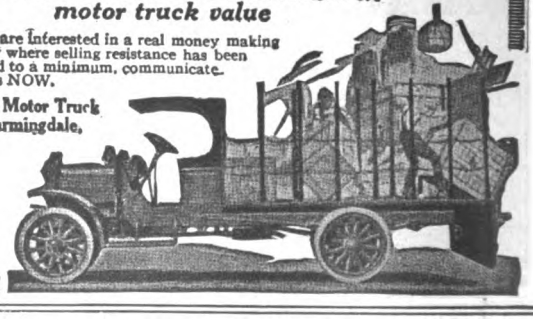


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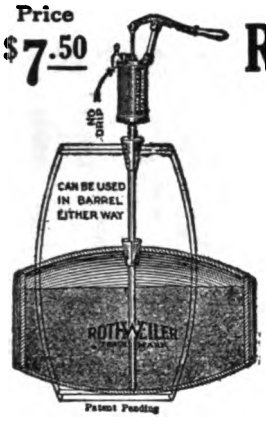
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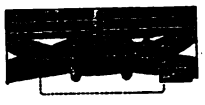
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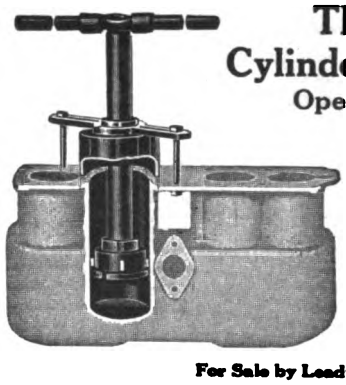
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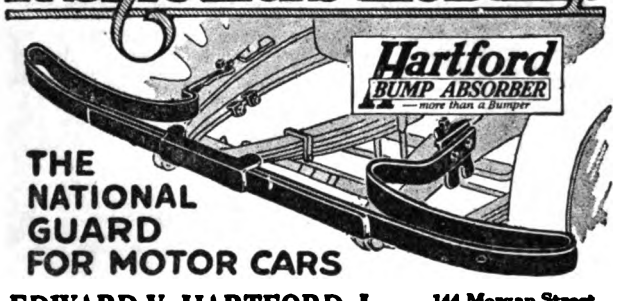
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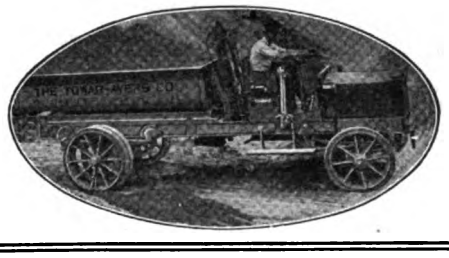


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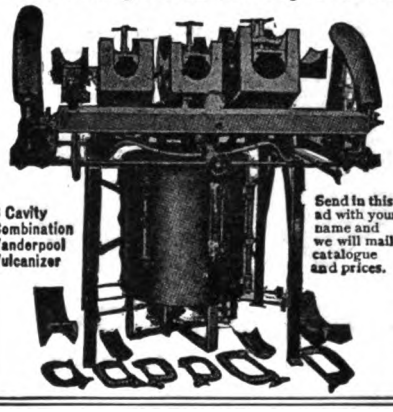


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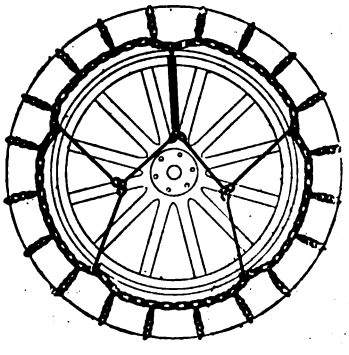
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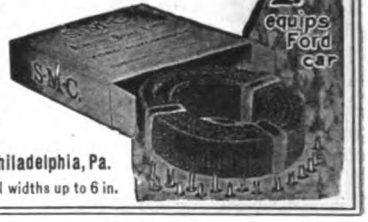
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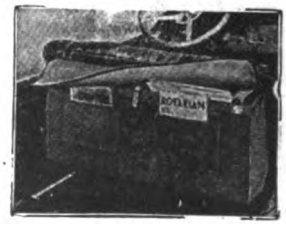
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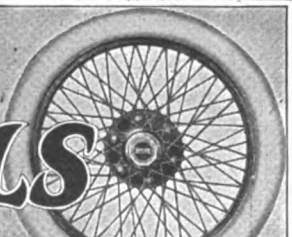
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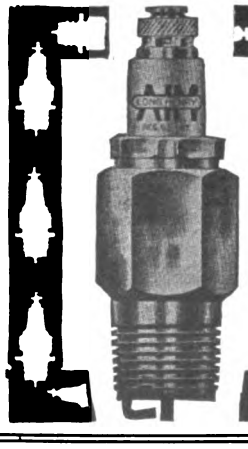
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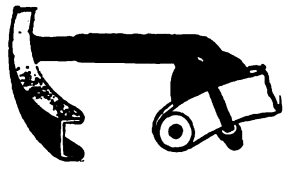
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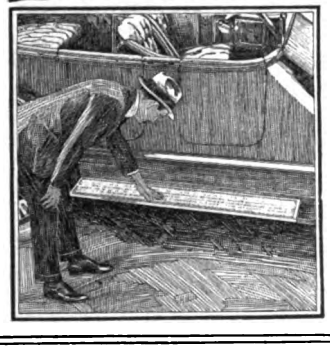
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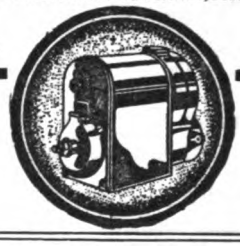
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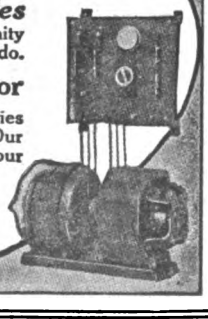
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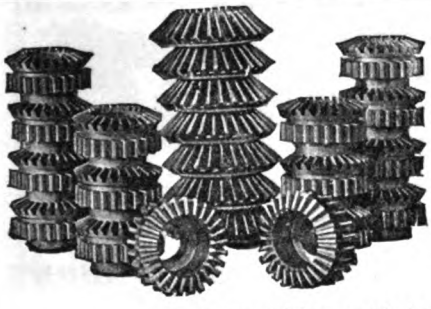
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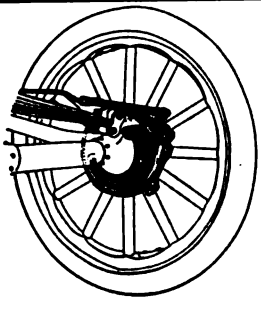
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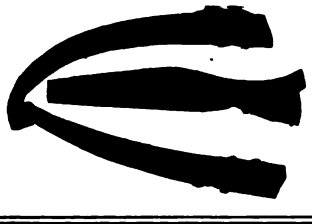


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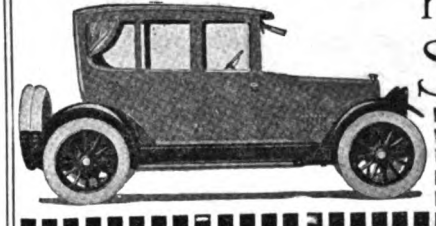


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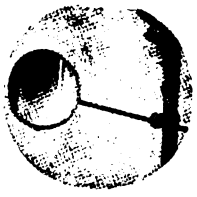
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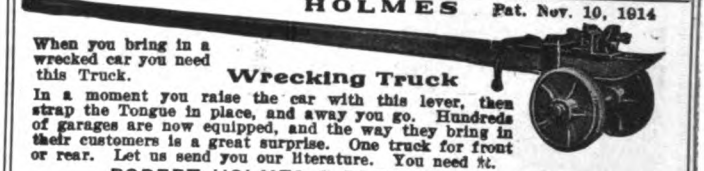
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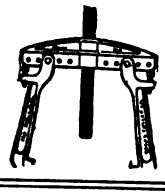
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30x3	7.00	2.00	33x4	14.50	3.50	36x4½	22.00	4.30
30x3½	8.75	2.30	34x4	15.00	3.65	37x4½	22.80	4.60
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32x4	12.45	13.45	37x4	18.95	20.95
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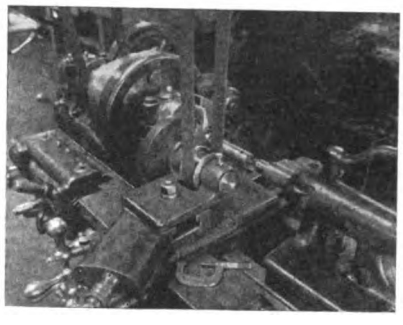
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Manufacturer of the W. B. Line



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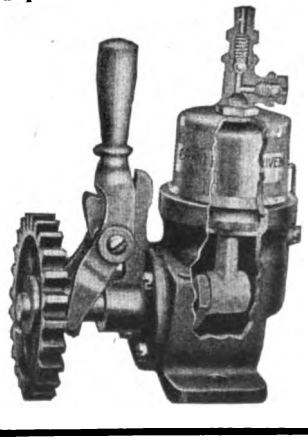
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Piston works *through* a Packing-Ring, reducing wear to the *minimum*. Beveled base of Ring shaves surplus oil off piston at every stroke. Permits ample lubrication, but prevents oil passing Ring.

Ring is endless. No gaps for air to leak out or oil to leak in. Can be instantly adjusted (by turning cylinder) to maintain air-tight, oil-proof fit, and insures 97% efficiency. This high efficiency enables the CRANE to do the work of pumps twice its size, weight and parts.

And small size, light weight, few parts and simplicity mean low production-cost. That's why the CRANE sells for $10 complete despite high grade materials and finest workmanship.



The full story of the CRANE and its patented Packing-Ring is told in an interesting little Folder — just off the press. Write for FREE copy today.

BAY STATE PUMP COMPANY

100 Purchase Street
Boston, Mass.

Export Dept., 100 Broad Street New York (115)

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A Wise Man Never Questions Success

Only the fools do. And when a man or a corporation goes big be wise and admit it.

Do you suppose the great Maxwell success was "the work of the wind" or ability?

Can you question figures like these:

Maxwell dealers	MADE	*in 1913-1914 over*	$2,500,000
Maxwell dealers	MADE	*in 1914-1915 over*	$4,700,000
Maxwell dealers	MADE	*in 1915-1916 over*	$8,000,000
Maxwell dealers	MADE	*in 1916-1917 over*	$12,000,000

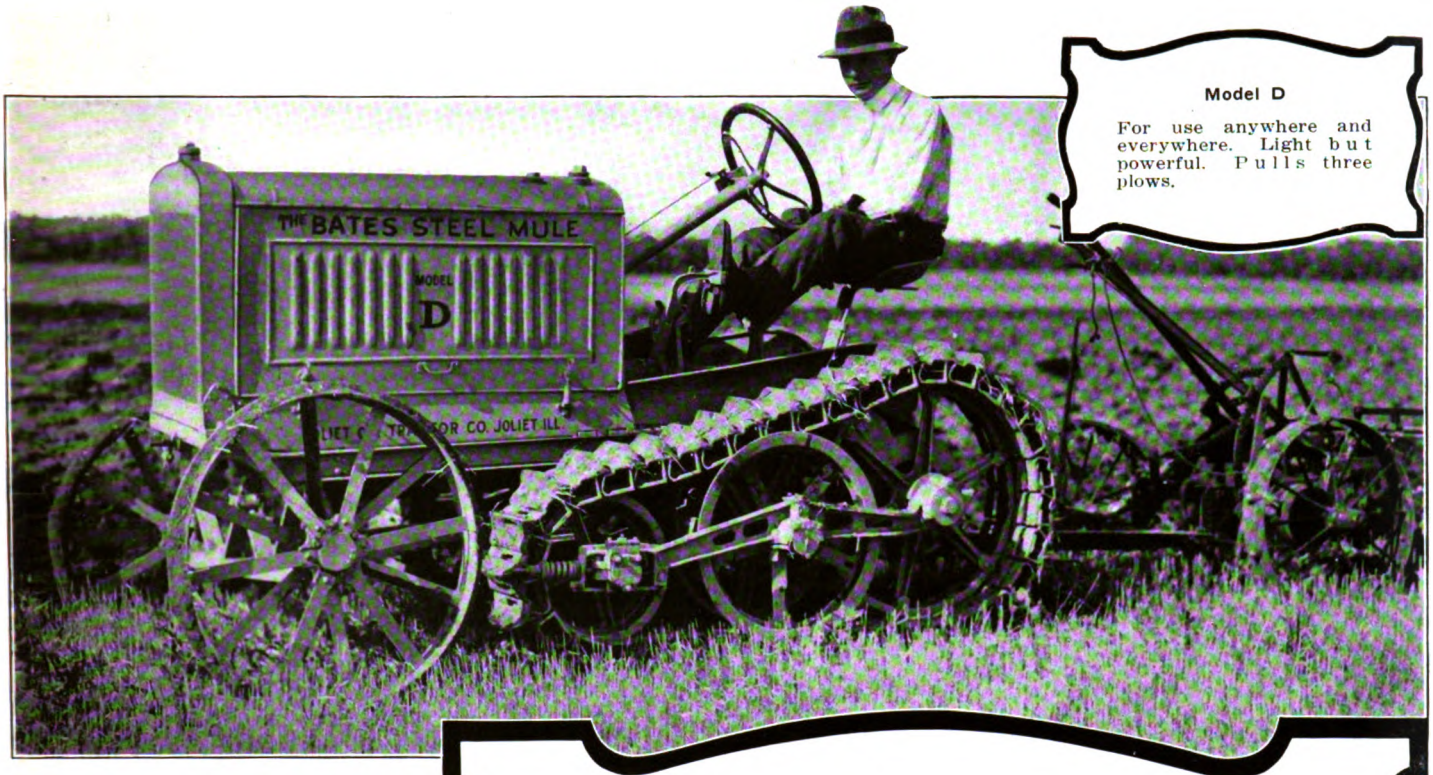
Then question not what is in store for Chalmers dealers since Maxwell has taken over the Chalmers business.

For like makes like, and they who have the rare skill of making money for one set of dealers are sure to make money for another set.

Already the Chalmers sales curve has begun to climb. Today it is the highest in Chalmers history at this time of the year. And since the Maxwell policies began to operate the increase in Chalmers business has been just 200 per cent!

A good many wise dealers are taking on the Chalmers line.

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Model D

For use anywhere and everywhere. Light but powerful. Pulls three plows.

The Biggest Opportunity Ever Offered To Automobile Dealers

A New Field of Profit Awaits You

With automobile production for 1918 uncertain and the market equally in doubt, you must safeguard your business in some other way. That way is offered by the BATES STEEL MULE Three-Plow Tractors.

Thousands of farmers will respond to our farm paper advertising. They demand tractors that will fit all their ground conditions, and a reliable CRAWLER type is the only one that does it. You can satisfy them and make a liberal profit if you handle

The Bates Steel Mule

FULLY COVERED BY PATENTS

This comprises two sturdy, well-built models that give long, hard service day after day.

Model D has a double crawler drive, roller bearings throughout and all working parts totally encased against dust. It is powerful, flexible, light, and burns kerosene. Pulls three plows anywhere at a speed from 2¼ to 3½ miles per hour. Heavy Duty four cylinder valve-in-head motor.

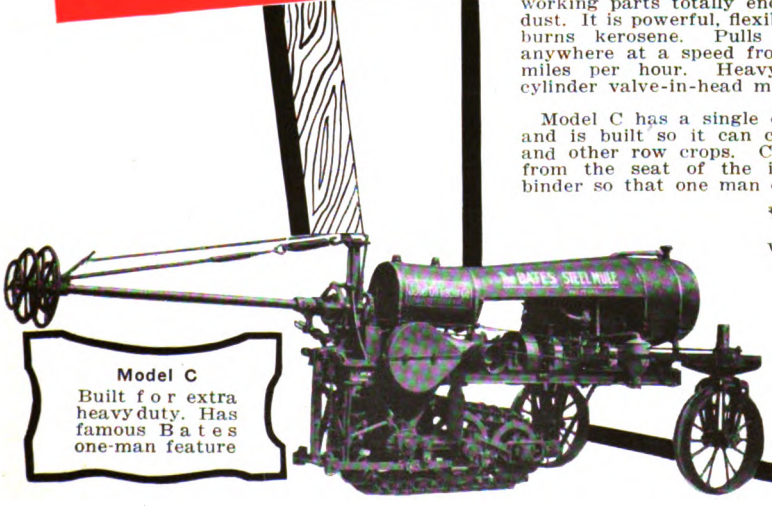
Model C has a single crawler drive and is built so it can cultivate corn and other row crops. Can be driven from the seat of the implement or binder so that one man operates both tractor and implement. Pulls three plows anywhere. Burns Kerosene.

These two models are the product of six years' tractor manufacturing experience and built in one of the largest tractor manufacturing plants in the country. The BATES STEEL MULE, because of its quality of workmanship, is a repeater and the machine the farmer knows he wants.

Because of increased facilities, we are able to take on a few new dealers —**not many,** please understand, but a few who can see the value of tractors of unusual merit. You must act quickly if you wish to grasp this opportunity.

Write To-day Sure

Write or wire at once for full particulars of each model, also as to dealer's proposition and territory open.



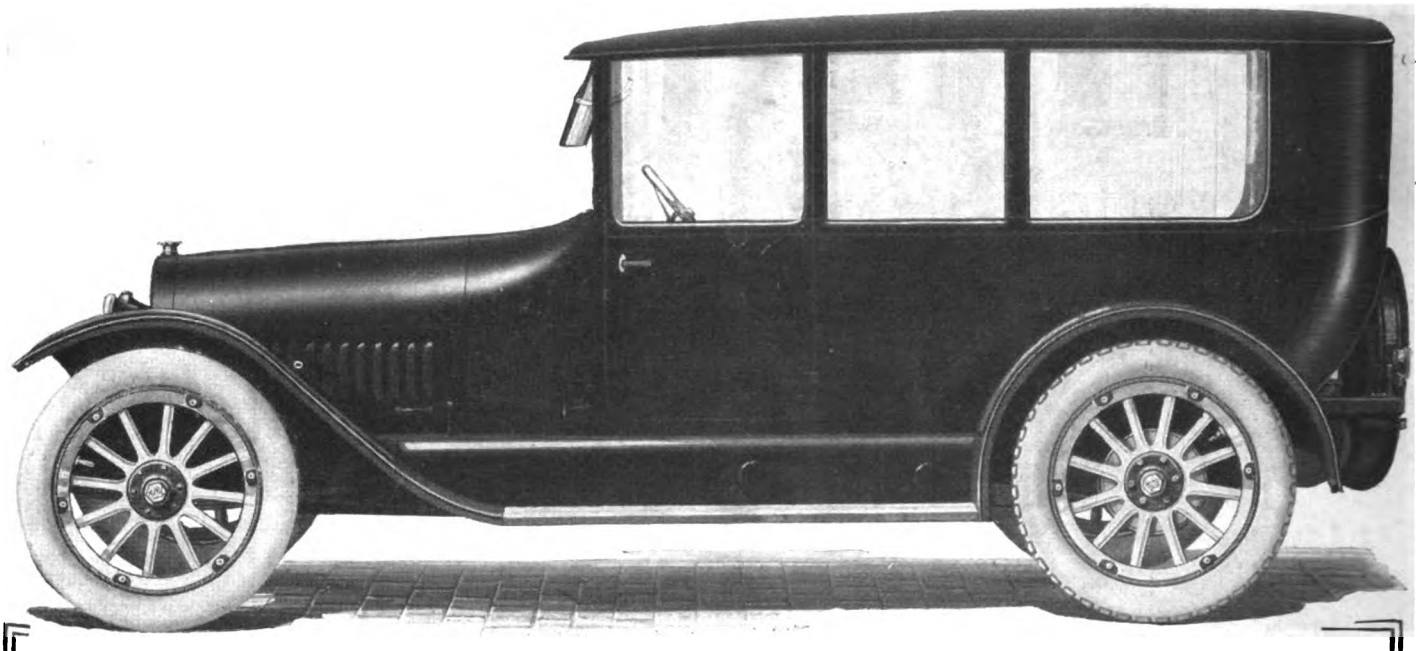
Model C

Built for extra heavy duty. Has famous Bates one-man feature

JOLIET OIL TRACTOR CO.

177 Jackson Street **Joliet, Illinois**

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All Cars in One

Two Sizes—19 Body Styles

MITCHELL SIXES are built in two sizes, similar in type. So a man can get all the Mitchell attractions at widely varying prices. They are built in 19 body styles—most of them new designs. These include new types of sport cars. They include new convertible models. So any type of car which one desires may now be had in Mitchells.

These bodies are creations of famous designers who are now in the Mitchell employ. All are built in our own new body plant.

All are based on a careful study of all existing models. So no attraction has been overlooked.

New-Day Methods

The Mitchell is built under modern efficiency methods. This mammoth plant has been built and equipped to produce this one type economically.

We have worked for years to minimize factory cost. And these savings have gone into extra values.

One result is extreme endurance. Our margins of safety are much beyond the usual. Our safety parts are vastly oversize. We use a wealth of Chrome-Vanadium steel.

There are many unusual features. These include a power tire pump, reversible headlights, shock-absorbing springs.

There is unusual luxury. In the past year alone we have added 25 per cent to the cost of finish, upholstery and trimming. This out of the savings in our new body plant.

The Mitchells are distinctive. The body styles are exclusive. The finish is enduring—fixed by electric heat. The equipment is unusually complete.

There is no other fine-car line today which combines so many attractions.

MITCHELL MOTORS COMPANY, Inc., Racine, Wis., U. S. A.

$1525

Mitchell—a roomy 7-passenger Six, with 127-inch wheelbase and a highly developed 48-horsepower motor.

Three-Passenger Roadster, $1490
Club Roadster, $1560
Sedan, $2275 — Cabriolet, $1960
Coupe, $2135—Club Sedan, $2185
Also Town Car and Limousine

Two Sizes

Mitchell

Sixes

$1250

Mitchell Junior—a 2 or 5-passenger Six on similar lines, with 120-inch wheelbase and a 40-horsepower motor. ¼-inch smaller bore.

Club Roadster, $1280
Sedan, $1950—Coupe, $1850

All Prices f. o. b. Racine.

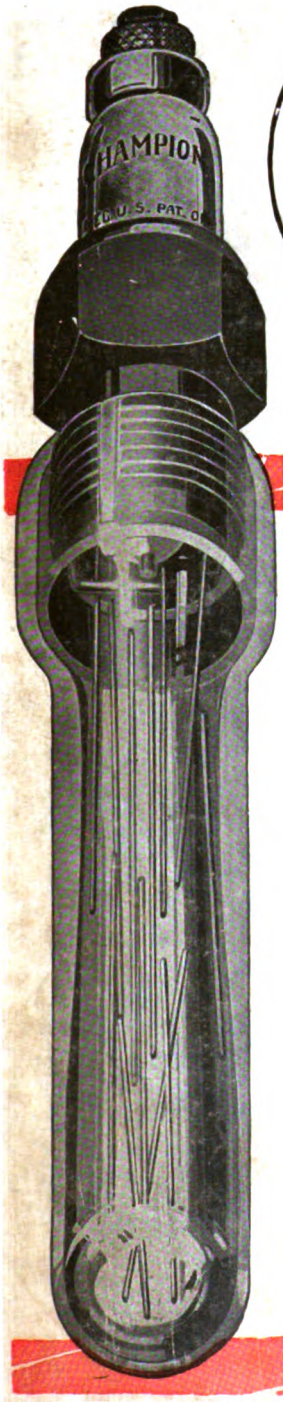
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIII
No. 13

New York, December 26, 1917

Twenty-five cents a copy
Two dollars a year





Champion "Minute" Spark Plug Cleaner

Clean Plugs —and hands clean

WITHOUT taking the plug apart, in a fraction of the time it used to take to *half*-clean your spark plugs, you can now get them *really* clean without even soiling your hands.

Just half fill the tube of the cleaner with gasoline, screw the plug in the socket at the top and give it a vigorous shaking.

The gasoline softens the carbon and the little flying needles pick it off in small particles, leaving the plug cleaner than you could get it in the old laborious way.

Champion Minute Spark Plug Cleaners sell for only 75 cents, come in a neat wooden box that will pack neatly in one's tool case.

They are a ready-selling money-making article for supply dealers and garage men everywhere.

Any jobber of automobile accessories will supply you.

Write for any information desired.

Champion Spark Plug Co., Toledo, Ohio

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Heater Core Gets Hot Enough to Burn or It Would Not Heat Your Car

Protector Shield Stays Cool Enough to Touch So It Cannot Burn Shoes or Robes

UTILITY
Protected Foot Rail
HEATER

may be installed anywhere in the car, but should displace the foot-rail. This installation conforms to the advice of physicians, that heat delivered directly against any part of the body—except the feet—or breathed straight into the lungs is extremely injurious to health and breeds dangerous colds.

Installed in place of the footrail, the UTILITY Protected Heater **heats by tempering the atmosphere of the entire car.** It warms the passengers all over—the way summer weather warms them. Easily adjusted with foot-controlled regulating valve to any temperature desired.

In the hands of over 200 new jobbers this year, stocked by all leading dealers, standard equipment on cars you will know—and recommended by the sanction of the industry to car owners everywhere.

Ask Your Jobber Today *Write for Complete Details*

THE HILL PUMP VALVE COMPANY
Archer Ave. and Canal St., Chicago

Eastern Sales Office: 149 Church St., N. Y. C.

Manufacturers of Famous UTILITY
Auto Specialties



UTILITY Protected Heater, Price **$15;**
UTILITY Jr. Protected Heater for Fords, **$7.50**
UTILITY Front Seat Heater, for Maxwells, Chevrolets, Fords and Front Seat Installation in All Other Cars, **$10**
Prices West of Rockies:
Utility Protected Heater..... **$16.00**
Utility Front Seat Heater..... **10.75**
Utility Jr. Heater..... **8.00**



How UTILITY PROTECTED HEATER Is Attached to the Exhaust

Watch for the Gold Plated UTILITY Protected Heater in the Anderson Six at the Shows

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Premier

The Aluminum Six with Magnetic Gear Shift

1917 has been a very profitable year for Premier Distributors—we believe that 1918 will be even more so. We would welcome the opportunity of discussing general conditions with you and justifying our optimism.

Our dealer contracts expire December 31st and renewals are now being made. Although there are over 300 Premier Distributors and Dealers in the country, yet there are still several important cities without Premier representation.

If you are located in such a city, why not write for details of a car, a contract and a factory that made one dealer exclaim:

"It's not only pleasurable but profitable to do business with the Premier factory."

Premier Motor Corporation

Indianapolis, Indiana, U. S. A.

Export Dept., 8-10 Bridge St., New York City

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MOTOR WORLD
FOR DEALERS, JOBBERS AND GARAGEMEN

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Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
Charles B. Shanks, Manager

Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
Detroit—95 Fort Street, West, Phone Main 1851
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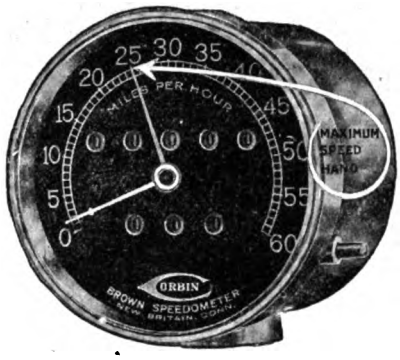
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A Speedometer Can Be Either One of the Two—Right or Wrong

If it is right it is a valuable possession; if it is wrong it is worse than useless. There are many influences to make a speedometer wrong in its register—extreme heat, cold, altitude and electrical forces are among the most important. One of the surest ways to guard against the inaccuracies arising from such sources is to use the

CORBIN-BROWN SPEEDOMETER

This is true, for the reason that the Corbin-Brown is built on a principle totally immune to the above mentioned influences—the centrifugal principle.

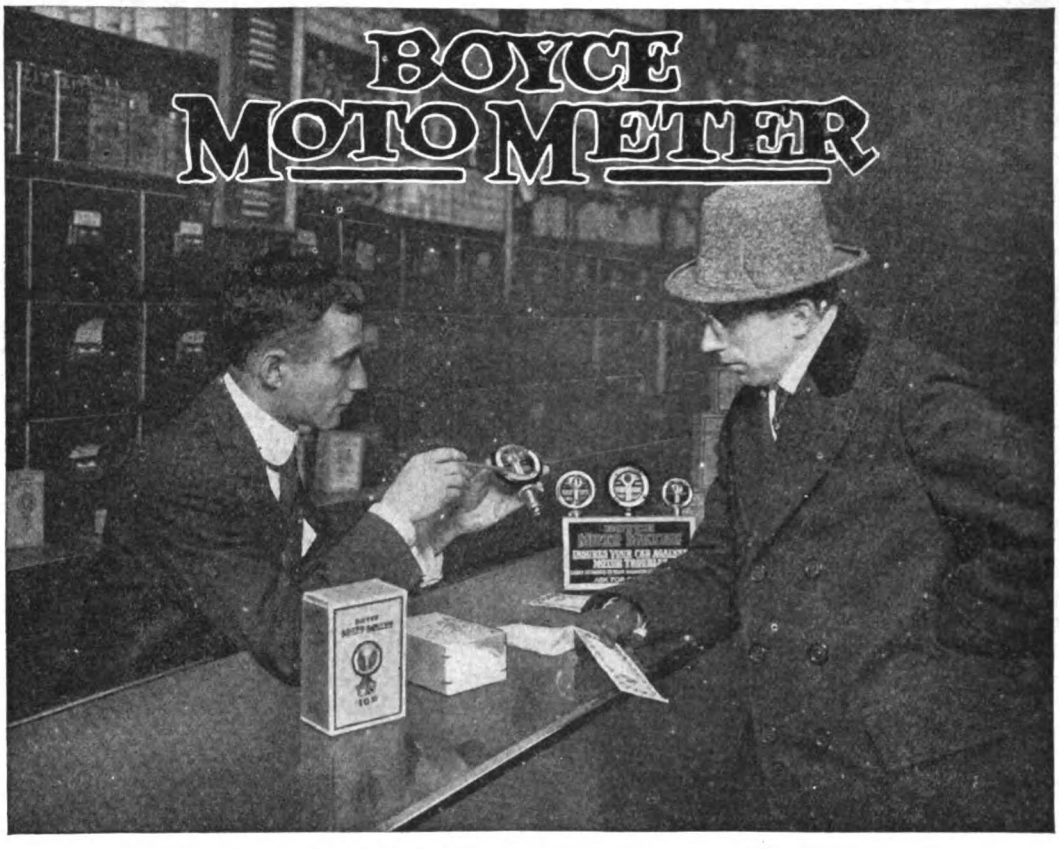
Furthermore, because of this principle the Corbin-Brown mechanical construction is extremely strong and simple, therefore durable and practically free from deteriorating friction.

An investigation will convince you of the merits of the Corbin-Brown. It has been endorsed by the highest authorities. Catalog on request.

The Corbin Screw Corporation
THE AMERICAN HARDWARE CORPORATION, Successor
NEW BRITAIN, CONN.
Branches: New York, Chicago, Philadelphia
Maker of
Corbin Duplex Coaster Brakes for Bicycles.

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BOYCE MOTO METER





SAY TO ANY CAR OWNER:

"Let me put a Boyce Moto-Meter on your car's radiator cap. Use it for thirty days. Let it prove its value. If you want the instrument after this trial I will send you a bill for $2.50, $5.00 or $10.00, according to the model you select. If you don't want it after this trial, I will take it back. It costs you nothing to prove its value on your own car."

Over one million Boyce Moto-Meters have been sold with this guarantee. Why don't you try to sell one of your customers a Boyce Moto-Meter? You can easily do this and they will consider you the best judge of automobile devices in your locality.

Prove its utility to your own satisfaction. Use a Boyce Moto-Meter on you *own* car for thirty days. Your enthusiasm then will sell hundreds of Boyce Moto-Meters.

THE MOTO-METER CO., Inc., Long Island City, N.Y.

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

Vol. LIII New York, U. S. A., Wednesday, December 26, 1917 No. 13

When You Go to the Show

WHEN you go to the motor car show this year you must view it through the eyes of 1918. *The eyes of* 1917 *are now dimmed and befogged by the shifting clouds of war. The man who was only a dealer twelve months ago is today a part in the biggest war the world has known. Yet he is still a dealer. So, he must have new eyes, a new viewpoint. He must think new thoughts. He must have a new frame of mind. He must visit the show in a new spirit. He must realize that as all things are different so is he different.*

WALK into the show in the knowledge that this industry is the third greatest industry in America, and that upon America has fallen the brunt of the great war.

Realize that thousands of people will flock through the doors of the show to see this industry dressed up for its annual bow—in its glitter and gloss, all of which only covers cold steel transformed by brains into one of the *world's greatest essentials.*

Realize that while thousands pass by in admiration and commendation YOU are a part of that which they see. YOU have helped make it. YOU are helping build and conserve it. YOU are one of the world's benefactors.

Realize that the industry of which you are a part is playing a potential rôle in the world war. At the show the people see polished bodies and soft leather, but back in the shops and factories wheels whir day and night and men toil making these cars and also a great mass of war supplies that America must have. Get the spirit of the car. See more than its gloss and polish. See it as a big essential in a period when transportation may mean the saving of civilization.

Realize that your industry is carrying the load of its own production and is at the same time meeting war's demands. It has met the test as it has met every other test that has ever been thrown upon it.

Know that your industry is going to do even greater things than it has yet done. It is going to meet even greater demands—*and you are going to help it.* America's hundred millions look to you to play your part—and you are not going to fail them.

Fill your heart with the determination that you will be optimistic—and will *permit none to be otherwise.*

Feel that you must prepare yourself for the days that are ahead. Study the cars displayed in order that you may know what best to sell—if not now, in the years after the war. Study salable accessories. Know what best meets the needs of America at war—*and, later, at peace.*

Keep your eyes open for new ideas. As you talk with other dealers and hear men talk at the show, in the hotels, and at dinners, be ready to grasp each idea that may make your business more efficient. Do not wait for ideas to come to you; seek them out—everywhere.

Carry a notebook. Jot down every good idea or thought you find. Let nothing be forgotten. Ideas are to-day worth many times their value twelve months ago. The show is NOT a holiday. It is a business affair. Talk with every dealer with the thought of greater efficiency in mind. Seek out successful dealers. Learn how they have made themselves leaders.

Realize that you must be more efficient. Determine to be more efficient.

Determine that you will help make this third greatest industry America's mightiest arm in war. Hold your head high, and set your jaw firm and walk into the show as a part of all that it represents.

The industry you have helped create has set the life of the world ahead one hundred years. It is your privilege to be proud.

Take what is yours.

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As Motor Car Dealers and Makers

Where Are We At?

Where are we at as a motor car manufacturing industry?
Where are we at as a motor car merchandising industry?
What is the attitude of our people toward buying motor cars in these war days?
What is the attitude of neutral nations toward purchasing motor cars in these war times?
As a group of American citizens gaining a livelihood out of the merchandising and maintaining of motor cars, where are we at?

FIRST: Let us settle our feeling about the government stepping in and stopping manufacture, and, incidentally, eliminating all retail merchandising and limiting the maintenance job to that of keeping the cars and trucks already in use in necessary running condition.

For 8 weeks we have been upset with rumors, but only last week the Council of National Defense announced very emphatically that there will not be any cutting down of industries, or, in other words, there will not be any curtailment by government action. Here are the assurances now issued by this organization, and these assurances coming after we have had an atmosphere literally surcharged with curtailment rumors, must be interpreted as being very nearly final. They should be accepted in toto, and apprehensions for the future should be put in the discard drawer or tossed into the waste basket.

The Council of National Defense, which has control of such matters, announces definitely that it has no thought of curtailing industries by legislation, but that the normal laws will work themselves out in every industry; in short, the law of supply and demand under war conditions will be relied upon to maintain the necessary balance.

No "Non-Essential" Lists

There is no necessity for any industry being panicky solely because it may not be as directly essential in winning the war as making ammunition or guns or airplanes.

But do not forget that healthy industries will be one of the strongest weapons in winning the war and that the curtailing of certain industries by government regulation is equivalent to bankrupting the capital in those industries and the people furnishing the capital.

Further, we need not look for any long list of essential and non-essential industries, as there are good assurances that there is not any thought of dividing industries into such classifications. All industries are essential but some are more essential than others. It is impossible to define what is and what is not an essential industry, and it has been pointed out that the making of expensive limousine cars that are wanted in Peru or Bolivia is essential when these people want such cars and they must have them if we are to get the copper and other precious war metals that come from that country.

In a word there are generally two sides to the essential-industry argument. The person who would sit in judgment and classify industries into essential and non-essential must look further than to the maker of the product; he must keep in mind the ultimate consumer and what his relations are to war business.

Mules Must Be Replaced

At present and for some time over 5000 mules per day have been shipped out of this country. These mules are going out of the great farming belts. Their places must be taken by some other form of power, and there is no more suitable form of power to take their places than the motor car, the motor truck and the farm tractor. Instead of less working power on the farms, we need more working power. We must get more products from the farmer, and yet there is less help on the farm than a year ago. This deficiency must be made up through the motor car, the truck and the tractor. Instead of fewer cars and trucks and tractors for 1918 we must have more. We must grow more. And if we have to grow more with less man power the only way to do it is to utilize more machine power.

Look at this farm situation in still another light: The horse is literally too expensive for farm use. He eats his head off. It takes too many acres to keep him. The produce from those acres that the horse eats should go into more food for human beings. The only way to do this is with the greater use of machine power, more cars, trucks and tractors. No one should be pessimistic with such a prospect ahead in the agricultural field.

City Demand Is Different

In many of our large cities the possible demand for next year is slightly different. The sales of cars has been off anywhere up to 60 per cent in nearly all of the large cities for several months. There have been many reasons for this. The Liberty loans have been very largely subscribed to in the cities. This has cut down the values of industrial stocks. Dividends on some stocks have been passed. Excess profit taxes are going to cut heavily into incomes. Many from the cities have been taken by the draft. There are a score of other reasons why the sales have fallen off in the cities.

Looking at the possibilities of car production during the coming season: The scare that was so widely circulated seven weeks ago that there would be a shortage of alloy steel and that the manufacture of motor cars might be stopped because of this has been dropped. The alloy steel situation is not so serious as was imagined in that the majority of the makers have been able to substitute high carbon steel for alloy steel.

Steel Problem Vanishes

There is no shortage of carbon steels and so the steel situation problem has practically vanished into thin air. The shortage of chrome vanadium steel is with us, but this alloy can be dispensed with except in bearings, and manufacturers are petitioning the government committee that has such matters in hand that there be no curtailment for such essential parts.

It would work a serious handicap if the size of bearings had to be changed by having to use a poorer quality of steel. That would upset the standardization work in bearings that has been done for several years. Changing the size of bearings would be a very expensive step for the industry, a step that would make itself felt from the manufacturer right through to the car owner.

Production Less Than Normal

It is true that at present motor car production is not up to normal for this

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An Evidence of Confidence

THIS is the largest issue of Motor World ever published. This issue, coming after we have been in war nine months, bespeaks the confidence the manufacturers of cars, parts, accessories, etc., have in the future of the industry under war regime. This issue, a new record for Motor World, should not give any confidence or sympathy to those who have been thinking in terms of non-essential industries. No better evidence could be submitted that the motor car industry is an essential one under war conditions.

The bottle neck of a nation's capacity in war is its transportation organization. This thought of transportation is the dominant one in America to-day. We have not ships enough to carry our great fighting army, with its fighting machinery, to France as fast as we would like to get it there. We have not transportation facilities in our railroads to get enough coal to get our homes warm and our industries going. Already two of our major systems of transportation have broken down; they are not adequate to war demands.

IN THE FACE OF THIS SITUATION WHY SHOULD WE THINK OF BREAKING DOWN THE THIRD GREAT SYSTEM OF NATIONAL TRANSPORTATION, NAMELY, THE INDIVIDUAL, THE FAMILY, THE CORPORATION, THE FACTORY AND OTHER ORGANIZATIONS?

These systems, which are largely made up of motor cars, motor trucks, motorcycles, farm tractors, etc., are the great capillaries of national transportation.

A national system of transportation is as strong as its weakest link. Our railroads are now weak, but we must not weaken this capillary system made up of our motor cars, our motor trucks, our horse vehicles, etc. We must keep on producing motor cars and motor parts, otherwise, as one great manufacturer has said, we are playing directly and quickly into the Kaiser's hands.

This war will be won by increased production. Its ultimate victory for us will be delayed by curtailed production. Motor World in its largest volume we submit as an evidence of this war-winning spirit of increased production and efficiency rather than the negative spirit of curtailment.

---

season of the year. It is further true that there is not any shortage of parts entering into motor cars or trucks. It is true that there is not any shortage of steel for the manufacture of high-carbon steel parts. It is also true that there is not any shortage of labor in the motor car factories; in fact, in many places there is a surplus of labor.

It is true that a few of the factories are working at practically 100 per cent capacity. There are three or four in this fortunate condition. Others are at 90 per cent capacity. Some are at only 70 per cent. Some are at 60 per cent. There are some of the smaller producers who are at 50 per cent. There are some that are only producing one-third of the number of cars they were producing at this time a year ago.

This reduced production is partly offset by the large number of cars stored with dealers in many sections of the country. Several makers filled the stockrooms of dealers. It was not good business, but it was done. This has cut down demand for new machines from the factories. When spring opens there is no doubt but that in many sections of the country there will be a shortage of cars and that used cars will be selling at good prices.

America Differs from England

There has been too much talk of curtailing the industry in this country as it has been curtailed in England, France and Italy. In England the manufacture of passenger cars was stopped over 15 months ago. There has been practically no sale of cars in England for a year. The manufacture of cars was curtailed due to the urgent necessity of having the factories make munitions. Later, the use of cars was restricted by the shortage of gasoline. Beginning with Nov. 1 this year the use of motor cars was practically prohibited by the issuance of licenses to use gasoline. *England has to import all of her gasoline and naturally she must do everything to economize.*

In America the situation is different. There is not any shortage of gasoline and why should there be a restriction of the use of motor cars for that reason? There should not. With us, cars play a greater role than in England, or France. In America our distances are so great that cars are the utmost necessity. This is especially true in the agricultural section. We have always had cars for the masses, in contrast with Europe, where the cars have been for the classes—the wealthy portions of the population. In England the farmers have never had enough money to buy cars, but since the war started they are making more money than they ever made before and now they will certainly become car buyers.

Truck Drive-Aways Coming

The driving away of all trucks is undoubtedly a certainty, particularly if the Government makes out well in driving all of the war trucks from the factories to the Atlantic ports, and goes a step further by loading them with merchandise that has to be moved to seaport. If the Government has to do this to relieve the railroads *there is not any reason why all truck dealers should not do it.*

The motor car dealer is not interested in the exporting of cars, but dealers in foreign lands are. In all of these foreign lands there is a strong demand for motor cars, just as there is in our farming sections. These foreign lands have felt the war in much the same way as we have here. If they have had good crops and ships to get the grain to the war zone, then they are making good money and want to get motor cars.

Export Trade Is Good

With several, the supply of ships has sorely cut down on shipping. This has not been nearly so bad as might have been. In spite of things our trade in the last year with South America has more than doubled. Our trade with Australia has doubled. Our trade with Cuba has trebled. Our trade with South Africa has suffered because of lack of shipping facilities. One thing must be understood, namely, that the taking over of ships by the Government does not mean cutting those ships off from the merchandise field.

The commandeering of ships by the Government generally means a more efficient use of those ships—that means more shipping rather than less shipping. We are improving our efficiency in all lines, shipping included.

Dealers Must Be Efficient

The motor car dealer has problems ahead of him. He must curtail. He can do this and do it efficiently. It is certain that many dealers must perhaps go out of business. There have been too many dealers anyway. Every time a new motor car came on the market a new group of dealers was created.

(*Continued on page* 16)

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What May Happen in the Automobile Trade

WE ALL speculate—but we can't know. We can only study war and business as they have affected each other in other countries and in our own country during the past three years. The great essential is that we BE READY. We must be on watch. Like a football team, we must be on our toes every instant, ready to grab opportunity or check disaster no matter where it shows or what form it takes. Be ready for instant action.

THINGS have already happened in the automobile trade. Conditions have changed rapidly and will continue to change for years. There will be changes even in the adjustment period after th war which will b as radical as those that are taking place to-day.

Already alterations have been made in business. Dealers are not selling as many cars as they used to sell. Garagemen and repairmen are losing their skilled employees. Many more skilled men must go to help in the great war. Some have taken various steps to fill in the gaps in their business. New kinds of labor are being recruited. All these things, and many more, will come in the immediate future, and it is every man's duty to get ready to meet new conditions as they arrive.

It is possible that car sales will still further decrease. It is not an unforeseen possibility that the production of some makes will be discontinued entirely, due to a decrease in production to a point where it ceases to be profitable.

With the present supply of gasoline in sight, entirely adequate for all demands, there seems every reason why the more than 4,000,000 cars in America should continue in operation, no matter how long the war may last.

The man who has been in the habit of running a car one year is already planning to run it two years.

The man who wants a new car will perhaps be content to buy a used car in good condition and cars that might ordinarily go into the discard will be kept in operation longer.

All of this means that the demands upon the service end of the industry are going to be heavy. Instead of cars being junked they are going to be run—and it means repair work.

This means that the demands uon the will mean a big production of parts, accessories and supplies. The jobbing trade should see a great era of activity and the manufacturing trade, aside from that of cars, should be pushed to its utmost to keep up with the expansion that will be necessary.

It will also mean that new forms of labor must be introduced into service work. Young men of draft age will have to be supplanted by older or younger men or by women. The employment of women has not yet attained proportions in service stations, but dealers and repairmen would do well to study carefully what has been done in England, where more than 1,000,000 women are working in machine shops and other similar mechanical establishments.

The Commercial Economy Board of the Council of National Defense has already begun a study of the business of dealers and garagemen. It hopes that the trade will be able to work out waste eliminations and economies which will permit the necessary volume of business at a decreased expense. It urges men to *study their businesses.*

Every man should delve deeply into his organization and see if there are not ways in which he may so adapt his business taht it will continue with maximum efficiency *under such conditions as it has never known before.*

Study Carefully the Pages that Follow

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Here Is Motor World's

Pool of War Ideas

IN an effort to assist the trade in fitting its business to war conditions, Motor World conducted a questionnaire through its columns in December. It asked for war ideas. Many replies were received. Thanks are extended to all who contributed.

In addition to that it took up the trade acceptance, putting business on a cash basis, restricting and defining service and making other business adjustments.

It was stated that all these ideas would be presented for the benefit of the whole trade and they are shown on this and following pages.

Perhaps some of these ideas may not fit every business, but there is no business that cannot use some of them. Also the man who is investigating his condition with a view to making changes should get many valuable lines of thought started from a consideration of these plans.

One of the points which is apparent from the replies received is that repairing is increasing rather than falling off, whereas the sale of cars has decreased considerably—from 20 to 80 per cent. In some cases the draft has taken men, others have not yet felt the effect of war's demands on labor—but all are seeking the way to the new path that we all must travel.

Used Cars for Taxicabs

In going over my garage I noticed a few used cars that I had taken in and were not moving so I got the idea of making something out of them. I painted these cars a bright yellow, put on winter tops and went after the taxicab business and with a little advertising I had the business of the town in less than a month. We are running at the present time three cars and a truck and have never run less than $100 a week above all expenses. This was done easily with very little work and expense.—C. L. Keyes, Motor Inn Garage, Peru, Ind.

Consolidated Service

We have consolidated our service work with that of another dealer.—S. E. Hickman, Northampton, Mass.

Farm Lighting Systems

I have taken the agency for a farm lighting system and plan also to get a truck agency. I have replaced the mechanics I have lost with less skilled men and am training them. At present I am working about 18 hours a day myself.—J. A. Sypal, Brainerd, Neb.

Cut Down Service

We shall cut down our service work if necessary. We are working on a truck and tractor proposition. We contemplate cutting our agencies down to one passenger car line, reducing our overhead and going strong on tractors.—L. L. Gilcrease Co., Reno, Nev.

Repairing Saws

We plan to employ more younger men. We are selling tractors, trucks and trailers and doing saw gumming, filing and setting. Trucks have been our most successful venture.—Durent Auto Co., Durent, Wis.

Saving 40 Per Cent of Time

We are training new men and putting in better tools and equipment to increase our shop capacity. We will take on a Ford truck and tractor and are putting up a building for car storage. With our new tools and equipment we believe we shall be in shape by spring so that one man can do as much in six hours as he used to do in ten.—C. R. Pierson, Hart Motor Co., Salinville, O.

Reducing Time Sales

We have gone on a cash basis and are reducing our time sales. We plan to take on a tractor agency. We plan to train men under 21 and over 31.—Colorado Mexico Garage Ass'n, Trinidad, Col.

Working Schoolboys

We are using women to replace men we have lost in the office and are using schoolboys Saturdays and evenings. By spring these boys will be a big help. We are increasing our shop work and are selling lighting plants. We plan to take a tractor agency. We have changed from credit to cash.—Fred Rice, Rice Garage, Ramah, Col.

Woman Sentry

We are selling a truck maker and plan to take a truck agency. We plan to expand our repair department. We plan to hire a woman to learn sentry work.—J. I. Thompson, International Rubber Sales & Service Co., Ft. Wayne, Ind.

Higher Rates

We are paying higher wages and charging higher prices. Thus far we have added a truck agency.—Riley Bros., Bridgeton, N. J.

Women in Stockroom

We are going to use women in the bookkeeping department and stockroom and shall employ older men where necessary in other positions. We are doing extensive advertising and have a good truck business. We plan to add a tractor agency.—Charles F. Peterson, Peterson Garage, Columbus, Ind.

Gasoline Girl

We expect to use a girl at our gasoline and oil station and if necessary will use female help in washing cars. We also will use older men and plan to use some women in our shop work. We were very much upset by losing our foreman and best mechanics, but are going to reorganize, do less credit business and handle things better than we have heretofore. We are buying carefully and are simplifying methods as much as possible so as to eliminate work. We believe we are going to have a good business.—Charles L. Turner, Turner Garage, Peoria, Ill.

Encourage Wise Buying

We believe everyone should encourage the running of cars and discourage any tendency to put them aside, but people should be encouraged to economize by stopping waste. There is no source of waste so prolific as in tires. There is hardly a second or made-over tire even that will not give the owner his money's worth if he will keep enough air in it. Our tires are equipped with an automatic valve which indicates the pressure. We have found that a misunderstanding of pressure sometimes resulted because pump gages did not record accurately. We know one that was 25 pounds off.—S. X. Neman, Armstrong Rubber Co., Rochester, N. Y.

Get the Cash!

We are sending to 10,000 dealers a small booklet advising them to put their

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business on a cash basis, or at least a partial cash basis. With these booklets we are sending two sets of three form letters each to be sent to the dealers' customers in making this change.—Warren Refining & Chemical Co., Warren, O.

Storage in Advance

We are collecting storage in advance. We are doing extra machine shop work and battery service and charging. Our repair business has increased 75 per cent.—Bartlett's Garage, 2135 Lincoln Ave., Chicago.

Gas Engine Work

We have the agency for a gasoline engine and farm implements and are doing skate sharpening this winter. We have put the business on a cash basis as far as possible. We are overhauling stationary engines, changing gasoline stationary engines to kerosene burners and installing kerosene carbureters. We expect it will be necessary to use some female labor.—C. H. Kenyon, Kenyon's Garage, 697 Broad St., New London, Conn.

Sells Washing Machines

We have added the agency for a washing machine and also for a tractor. We have put our business on a cash basis.—West Broadway Garage, Onawa, Ia.

Many New Activities

We are enlarging all departments and are going carefully into our costs and accounting.

By advertising we are hammering home the idea that war means economy and that economy to the motorist means better care of his car. This has increased our service work and the sale of parts.

We are advertising in every issue of our local papers for service work and for car sales. We tell the prospect this is a good time to buy and have increased our sales way over last year for this period.

We are selling hoods and anti-freeze.

We are giving free plenty of winter driving advice.

We are telling our trade not to be afraid of a little cold weather and are pointing out to them why we are best suited to give them service. We are issuing circulars on these subjects.

We believe conditions are developing a better business organization for us and are developing our own powers to enable us to get business where it did not seem to exist before.—A. T. Smith, St. Johns, Mich.

To Limit Service

We have lost 13 men so far and 10 others are eligible. Half of them have not been replaced as yet, but we are using younger and older men as far as we can. We have a tractor agency that is satisfactory. Our accessory business will be expanded.

We plan to limit service to only necessities and increase the sale of parts, accessories, delivery wagons, trucks and tractors.—F. W. Wilson, Overland-Houston Co., Houston, Tex.

Cut Out Night Service

We plan to employ younger men and women to meet the labor shortage. We shall also add a tractor agency.

We have discontinued night service after 9 p. m. and are reducing credits.—E. W. Tiffany, Hollister, Cal.

Increasing Activity

We are developing a used car business, have had considerable success with a truck agency and believe we have a future in a tractor agency that we have taken. Truck sales have increased 80 per cent, used car sales 20 per cent, new cars are off 20 per cent, and accessories and tires 30 per cent.

We are using older men, improving the shop equipment, working overtime when necessary and increasing our advertising and sales follow-up. We have engaged a woman bookkeeper to replace a man.—Butler-Veitch, Berkeley, Cal.

Farm Lighting Business

We have put our business on a cash basis and have taken the agency for a farm lighting system and are doing electric wiring.—A. E. Harvey, Marysville Motor Car Co., Marysville, O.

One Agency Only

We have reduced the number of makes of cars we have been handling and are concentrating all our energies on one make. We are pushing one line instead of four.

We are breaking in new men to take the place of those we have lost. We have taken a tractor agency. Our repair business is 20 per cent ahead. Car sales are 35 per cent off.—Graves & Holmes Motor Co., Rochelle, Ill.

How One Dealer Sells Farm Lighting Systems

By James A. Flynn

Sales Manager Lalley-Wilson Electro Co., Omaha

IN our work of distributing Lalley-Light in Omaha territory, we believe in practising intensive salesmanship. Wherever it is possible to do so, we appoint as our dealer a man who is already in the automobile business. We feel that the motor car dealer is the logical man for Lalley-Light. If he has made any success at all of his business he is acquainted with the farmers in his territory. If he is in a locality that has no central station for electrical supply—for then his townspeople are equally legitimate prospects for Lalley-Light.

Throughout the country are many such towns; and they make a doubly fertile field for Lalley-Light sales.

Our first work as distributers, of course, is to cover our territory with retail dealers. We employ salesmen to carry on this work and to close contracts. In some instances an electrical supply man is selected. If he has the energy and the ambition which characterizes the motor car dealers we have on our list, he makes a good dealer for Lalley-Light.

The dealer, once appointed, needs no further equipment than a demonstrating outfit. This is mounted on an automobile, battery machine and all.

Here at Omaha we maintain several of these outfits, and when a dealer has got his prospect to the point of a demonstration, but has no outfit of his own, we send one of our trucks to him.

Naturally the time to make a farm demonstration of an electric light plant is at night, so the trip to the prospect's home is made after supper. The farmer himself is then at leisure. He has time to listen to a salesman and to see what Lalley-Light would mean in the way of illuminating his home. His family is together then, too, and they are just as much interested in electric light as he is—sometimes even more so.

Our trucks are fitted with a framework on which the lamps are mounted. As the car is driven into the farmer's yard, the lights are all turned on. It is not hard to imagine the surprise, and the delight, of the farmer's family at seeing the blaze of brilliant light at the door—in a spot where never before had there been electric light.

After a few minutes these lights are turned off. The plant, of course, continues in operation. A cluster of lamps, on an extension wire, is taken into the house and hung from the ceiling in the living room, the dining room or the kitchen.

Then the oil lamps are extinguished, and Lalley-Light turned on. That makes a telling contrast. While the lights are on the workings of Lalley-Light are explained to the farmer and his family and its many advantages pointed out.

The kerosene lamp is again brought into play and Lalley-Light turned off. This time the contrast is even more pronounced. The oil lamp seems more dim and inadequate than it ever did. If there is ever a chance to sell a farmer a Lalley-Light plant, it is after he has seen its brilliant illumination, and then suddenly gone back to the kerosene basis.

We work in close co-operation with our dealers. They send us the names of farmers who do not own lighting systems, and these men are circularized at least once a month from our headquarters, in addition to the direct work the dealer is doing on them. Prior to an exhibit, as at a State fair, show or convention that will be attended by farmers, we send out invitations, asking them to call at our exhibit for souvenirs. We also take the names of other prospects and later on send them to the dealers for them to follow up with calls and a demonstration.

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More Efficiency

We are planning to give more attention to the efficiency of our organization and to the sale of accessories and supplies, reducing part of our effort on passenger cars. We also shall go stronger on trucks. We are using older men to replace those we have lost.—Engstrom Motor Co., Holdredge, Neb.

May Go Farming

We have taken on trucks, tractors and welding and I may also begin the operation of a farm if necessary. Business is about up to par. We plan to replace the men we lose with younger men.—J. B. Gebhard, Dyersville, Ia.

Better Equipment

We are adding better and more equipment to save time and have put our business on a cash basis to save bookkeeping work and losses. We believe better equipment will enable us to meet the labor shortage. We are going to play up the repair of old cars.—Charles City Motor Car Co., Charles City, Ia.

Handle Tractors

We shall handle tractors next year.—Phillipsons Bros., Argyle, Wis.

Batteries and Tires

We plan to push batteries and tires. Our oil, shop and accessory business is going well and we plan to have a truck agency. We have a livery business, but that and tires have fallen off somewhat. —The Morse Garage, Lincoln, Neb.

Using Women Employees

We are using two women, one as bookkeeper and the other as salesman, to replace employees we have lost. Our car sales business is about double, but our whole business is about 50 per cent off. We are working out new sales plans. —Seaside Garage, Rockaway Beach, N. Y.

Truck Agency

I am subject to draft and do not know what to do, but if I continue in business shall take on the agency for a truck or a small delivery car. I shall use older men to replace those taken by the draft. —D. Gladding & Co., Cortland, N. Y.

More Advertising

To stimulate car sales we are printing on the back of our stationery a list of large corporations and the officials in them who have bought cars of us.—J. H. McMullan, Jr., Edenton, N. C.

Tractor Agency

We have had good success with a tractor agency and plan an increased business through a battery department. Our repair business is 20 per cent ahead and we hope to make it still larger.

Cash Basis

We have changed to a cash basis and plan to increase our storage battery work.—A. L. Reeves Garage, Bishopville, S. C.

Cutting Expenses

We are planning to take a truck and tractor agency and are working harder and cutting expenses wherever possible. We are training new men not in the draft age.

Getting Ready for Repairs

We are equipping our shop for all kinds of repair work, such as reboring cylinders, storage battery work and magneto repairs. We already have a truck agency and plan to sell garage heaters, do vulcanizing and handle batteries.—The Mayfield Motor Co., Torrington, Conn.

Save Gasoline

In washing parts hot water and soda ash will do as good work as gasoline and it saves quite a number of gallons a day of gasoline and kerosene, whichever is used in this work. Furthermore the parts will dry themselves off through heat as soon as they are taken out of the water.—A. E. Mitzel, Canton Motor Car Co., Canton, Ohio.

Cleanliness and Economy

A clean shop saves time because parts and tools do not have to be cleaned of the accumulation of dirt that comes from dirty floors and benches.

Parts and tools also are not lost if the shop is kept in order. Cabinets or drawers should be provided.

Tools scattered on the floor may cause a man to fall with sometimes expensive results.

A good light is essential to good work and safety.

We are recommending these changes in Denver business places at this time.—Edward W. Johnson, secretary, Denver Automobile Trades Association.

Sells Special Polish

We bought a polish formula, but it was not what it should be. We now have another formula which makes a very good polish but will not harm any finish. We make this and sell it not only to automobile owners, but to everybody, as it can be used in the home on furniture and so on. This is made up in our spare time, under our own label, and the margin of profit is large. We are also doing some livery business which helps out.—H. Ward Conde, Conde's Tire Show, Ottawa, Ill.

Special Repair Prices

We sent to 500 Dodge and 500 Hudson owners a couple of small cards made up with lump sum prices for different repair jobs, such as "Grind Valves, Clean Carbon, Ream Valve Seats, Face Valves and Adjust Tappets, for $3.75." These brought a lot of business, as owners are not used to a flat price for repairs and it looked good to them. The figures were based on 80 cents an hour.—Foster-Stallman Co., Denver.

Keep Right On Sending Your War Ideas

THE War Idea Pool promoted by MOTOR WORLD has been very successful. Some of the ideas in this pool are worth a lot of money to every reader of this paper. Do you remember that idea by the man who turned a lot of old used cars into bright yellow taxicabs and is making $100 a week net? Isn't that worth a lot? May be you had thought of it before and maybe you hadn't. We'll bet there are a lot who hadn't thought of it. And we'll bet there are some ideas in there that are new to every reader. Let's have some more of these ideas. Shoot 'em along. We all know the motor car trade is a live one so let's print some of the evidence.

Send 'em along!

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Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

ON the opposite page is a map showing the location of all except the Pacific Coast shows. The numbers opposite each city's name refer to the number of the week following the New York show. For example, New York is No. 1, and any other shows during that week bear the same number. All shows in the following week are No. 2. Some shows begin Saturday and run all of the succeeding week, and there are various other split-week arrangements. In each case the number refers to the week in which the principal part of the show is held.

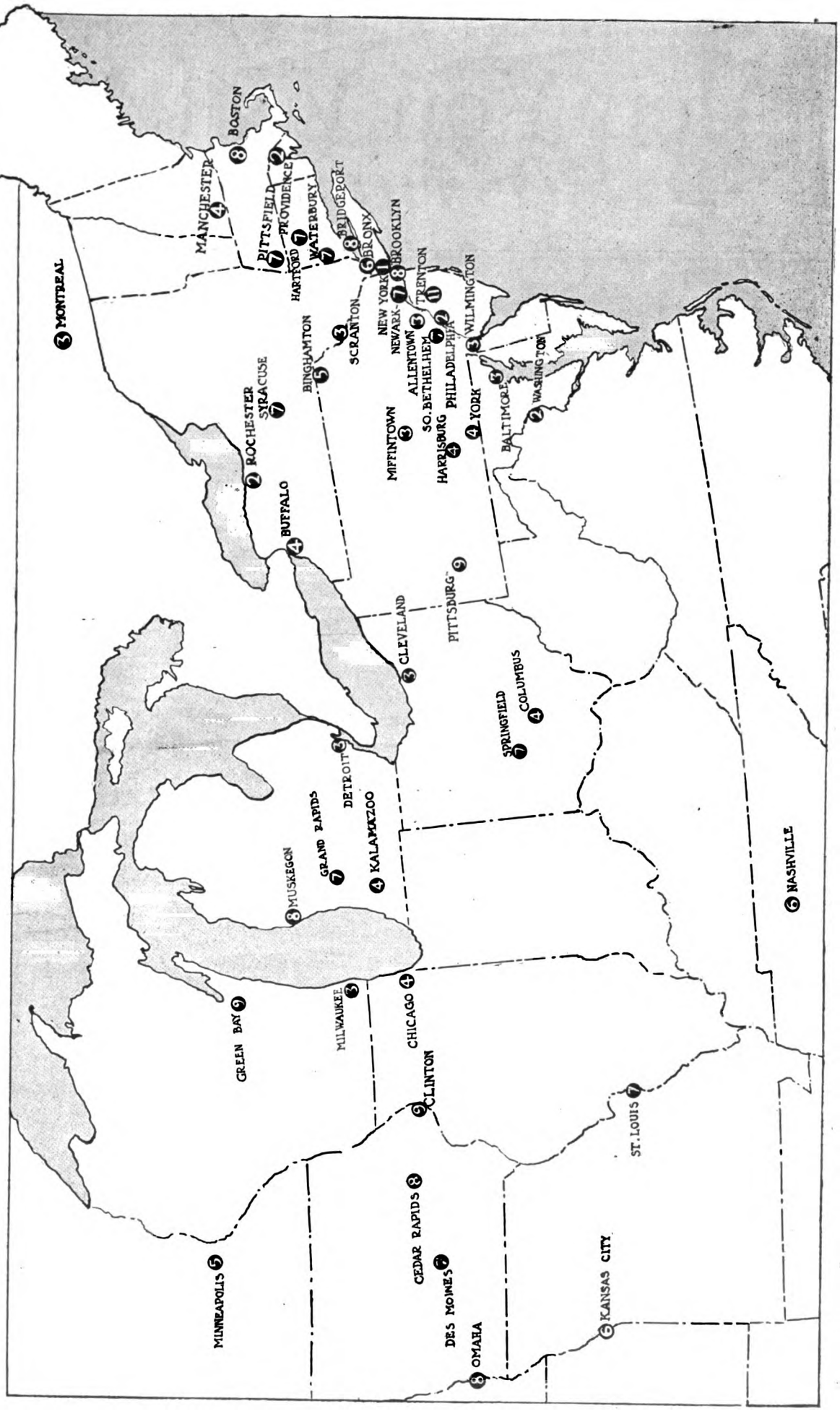
New York, N. Y.	Salon, Automobile Salon, Inc., Astor Ballroom. John R. Eustis, Mgr.	Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-12
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wanamaker's Garage.	Jan. 12-19
Rochester, N. Y.	Tenth Annual, Exposition Park C. A. Simmons, Mgr.	Jan. 14-19
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Portland, Ore.	Motor Car Dealers Assn., Armory. Jos. M. Rieg, Mgr	Jan. 21-26
Oklahoma City, Ok.	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn. Armory. Hugh B. Andrews, Mgr	Jan. 21-26
Baltimore Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory	Jan. 22-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
York, Pa.	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan. 26-Feb. 3
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Minneapolis, Minn.	Minneapolis Auto. Trade Assn Walter B. Wilmot, Mgr.	Feb. 2-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Track Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
San Francisco, Cal.	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
	Commercial Vehicles	Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn., Auditorium.	March
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Muskegon, Mich.	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Columbus, O.	Auto Exhibiters Co. W. L. Carney, Mgr.	Feb. 27-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. Pittsburgh, Motor Square Garden John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building Chester I. Campbell, Mgr.	Mar. 2-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n Coliseum.	Mar. 6-9
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11
Great Falls, Mont.	Montana Automobile Distributers Assn.	Mar. 16-20
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates	Mar. 19-24
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn Samuel S. Cohn, Mgr.	Apr. 9-13

Conventions

New York	Nat'l Automobile Dealers' Assn., Meeting of directors and vice-presidents from Eastern States.	Jan. 7-8
New York	Tenth Annual Dinner, Motor Accessory Mnfrs.' Assn., Waldorf-Astoria, 7:30 p.m.	Jan. 9
New York	Convention, National Association of Automobile Accessory Jobbers, Hotel Astor.	Jan. 11-16
Montreal, Can.	Convention of all men Interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago	Annual Convention, Garage Owners' Assn of Ill., Green Room, Congress Hotel.	Jan. 29-31

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MOTOR WORLD suggests to dealers that they look this map over carefully, and ask their factories to make sure that there is plenty of time for the shipment of exhibits, as it would be practically impossible, with present railroad conditions, for much speed to be made; and were an exhibit expected to be shipped from a No. 3 show to a No. 4 show, it might not arrive until too late.



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Men You Will Meet
AT THE SHOW

THESE Men You Will Meet at the Show are in three lists—Cars, Accessories and Jobbers. Those before which is an asterisk (*) are delegated by their companies to give especial attention to dealers and to handle dealers' business. The name of the hotel at which the company will make its headquarters, aside from the exhibit at the show, follows the company's name.

ACCESSORIES

A. B. C. Starter Co.—Waldorf—*F. J. Ryan, sales mgr.; Charles P. Sieder, pres.; T. F. Drews, asst. gen. mgr.; William M. Irvine, service dept.

Advance Automobile Accessories Corp.—Astor—*C. B. Johnson, sales mgr.; *M. O. Smith, Eastern representative; *H. S. Irving, vice-pres.

Ahlberg Bearing Co.—1790 Broadway—*P. J. Treiber.

Albertson & Co.—Woodstock—*J. P. Keegan.

Amazon Rubber Co.—Knickerbocker—*Owen Moynihan, Eastern Dist. Mgr.; *L. J. Myers, sales mgr.; C. J. Hazen, advertising mgr.; L. F. Smith, vice-pres.

American Lava Co.—Waldorf—*P. J. Krueri, treas.

Apco Mfg. Co.—Astor—*Thomas T. Wilson.

Armstrong Cork Co.—McAlpin—*Cornelius F. Henry, *George T. Turner, John C. Stagg, Conrad H. Young, F. L. Munroe.

Auburn Ignition Mfg. Co.—McAlpin—*H. S. Ketchin, *G. F. Blake, *H. F. Emerson, *F. S. Blake, Messrs. Conolly and Riley.

Au-To Compressor Co.—Waldorf—*A. S. Clucker, C. L. Hixson, A. J. Ludy, R. G. Stough; Astor—J. W. Lawhead.

Auto Pedal Pad Co., Inc.—794 Seventh Ave.—*Daniel Sinclair, Frank E. Garvey.

Bailey Non-Stall Differential Corp.—Manhattan—*J. E. Duffield, gen. mgr. & treas.

Bearings Service Co.—Waldorf—*D. H. Torrey, sales mgr.; *R. Charles Brower, mgr.; Ralph S. Lane, pres.; Alfred K. Hebner, secty.

Black & Decker Mfg. Co.—York—*William E. Jordan, S. D. Black, pres.; R. H. Smith, E. P. Brandt, H. G. Brandt.

Bound Brook Oil-Less Bearing Co.—Astor—George O. Smalley, gen. mgr.; William F. Jennings, Eastern sales mgr.; J. B. Howell, H. J. Lindsley, Western sales mgr.; Nate A. Wade.

Breeze Mfg. Co.—*H. C. Kennedy, *C. S. O'Loughlin.

Brewer-Titchener Corp.—McAlpin.—*Norman A. Boyd, *R. L. Brewer, *M. C. Wood, E. A. Brewer, C. E. Titchener, F. L. Titchener, B. W. Stanward.

Brown-Lipe Gear Co.—Biltmore—*Arthur E. Parsons, *George G. Bailey, J. Otis Pierce.

Brunner Mfg. Co.—Astor—*George L. Brunner, *D. G. Caywood, *A. B. Jenkins, B. H. Kaple, O. S. Jones.

Buda Co.—Astor—*Lon R. Smith, P. S. Dasey, George Koons.

F. S. Carr Co.—Biltmore—*V. C. Cramer, *J. S. Beatty, T. H. Dumper, J. A. Duval.

Carter Carbureter Co.—Manhattan—*H. S. Staton, *W. B. Noble, H. H. C. Weed.

Central Brass & Fixture Co.—Knickerbocker—*P. P. Crabill.

Chadick DeLamater Corp.—159 West Twenty-fourth Street—*William H. Chadick, *Oakley R. DeLamater, *Henry Eagle, George.

Champion Ignition Co.— Biltmore — *Albert Champion, *W. S. Isherwood.

Events of the Week

Daily—Gemco Mfg. Co.—Social gatherings, Astor, Parlor F.

Jan. 8—Anderson Motor Co.—Dealers' Meeting, Martinique.

Jan. 9—Selden Truck Sales Co.—Sales Conference, Biltmore.

Jan. 9—Smith Motor Truck Corp.—Banquet, Astor.

Jan. 10—Keystone Rubber Mfg. Co.—Dealers' Banquet, Rector's.

Jan. 12—Emil Grossman Mfg. Corp.—Salesmen's meeting and dinner.

Champion Spark Plug Co.—Astor—R. A. Stranahan, F. D. Stranahan, F. B. Caswell, H. L. Corey.

Clark Equipment Co.—Biltmore—*E. B. Ross, E. B. Clark, R. J. Burrows, J. P. Ware.

Common Sense Mfg. Co.—*W. C. Paul, *F. C. Fischer, A. Sauer, H. Fecht.
Coffin, *C. F. Flinterman, Ellis Larson, A. L. Putnam.

Durkee-Atwood Co.—Astor—*H. F. Durkee, E. V. Whiton, W. Tamati, H. C. Atwood.

E. A. Laboratories, Inc.—Factory, 80 Broadway, Brooklyn—*W. VonElm, *E. Auflero.

Edmunds & Jones Corp.—Astor—*G. E. Edmunds, *L. N. Pyle, W. T. Jones, C. E. Godley, F. E. Castle.

Electric Automatic Cigar Lighter Co.—*John G. Valentine, Fred Peixotto, Sidney R. Oldis.
E. H. Cooper, M. H. Cox, E. R. Carter.

Endurance Tire & Rubber Co.—Astor—*J. H. Cooper, *A. W. Shattuck, *H. E. Witherspoon, M. P. Brown.

Connecticut Telephone & Electric Co.—Biltmore—*C. E. Stahl, *L. C. Bennett, W. J. Johnston, W. W. Neff.

Continental Motors Corp.—Yale Club & Biltmore—*G. W. Yeoman, B. F. Tobin, respectively.

Corcoran-Victor Co.—Astor & Knickerbocker—*James A. Muir, *William Barley, *C. A. Bisonette, John W. Wilson, Pat. Dougherty.

Curtis Pneumatic Machinery Co.—Belmont—*L. C. Blake, A. E. Hoerman.

Davis-Browne Electric Co. — Woodstock—*William J. Davis.

Detroit Pressed Steel Co.—Biltmore—*H. A.

Eureka Rim Compressor, Inc.—Wallick—*Edward J. Flannery, *Burr B. Noble.

Fafnir Bearing Co.—Yale Club—*M. Stanley, W. Yeoman representing Continental Motors Corp.

Federal Export Corp.—Biltmore—*Carlton M. Garrett, *Willis H. Mason.

Findeisen & Kropf Mfg. Co.—Astor—*G. R. Lundane, *A. E. Barlow, W. L. Brown.

Francis-Rand Co.—Woodstock—*A. E. Francis, A. B. Smith, A. B. Ellsworth.

Fulton Co., Knoxville.—Prince George—*C. N. Mynderse, H. F. Old, V. H. Klein, J. A. Kinnird.

Fulton Co., Milwaukee.—Astor—*S. A. Fulton, G. F. Morrissey, N. C. Beerend, E. L. Worcester.

Fulton Sales Co.—Astor—L. H. Scurlock, S. A. Winsor, L. Comerford, J. W. Fulton.

Gemco Mfg. Co.—Astor—*L. A. Raasch, *M. A. Dewey, *John Craig, G. F. Discher.

General Asbestos & Rubber Co.—Biltmore—*C. B. Jenkins, J. T. Jenkins, J. H. Bricker, John F. O'Brien.

Geuder, Paeschke & Frey Co.—Biltmore—*Phil Kempter.

Grossman Mfg. Corp., Emil.—Bush Terminal Bldg. No. 20, Brooklyn—Emil Grossman, L. M. Schwartz, T. S. Witherbee, R. Isaksen, J. F. Melzer, Joe Sacks, J. N. Lowe, H. G. Wedler.

Gulf Refining Co.—Biltmore—*William B. Akin.

Hale & Kilburn Co.—Knickerbocker—*C. H. Brennan, *J. R. Strain, *H. C. Minor, W. W. Washburne, C. E. Hunter, A. L. Lambert.

Halladay Co., L. P.—Astor—*L. P. Halladay, *W. J. Henicke, *E. L. Thompson.

Haney & Co, J. H.—Astor—*R. J. Myers.

Hart-Bell Co, Inc.—Office at 1926 Broadway, Room 606—*E. A. Roure.

Hartford, Edward V., Inc.—Astor—*A. J. Dueth, *E. R. Waterman, A. Waterman, D. E. Harvey, E. L. Leinbach.

Hartford Mch. Screw Co.—Office at 409 Broome St.—*H. W. Beardsley, *H. E. Penfield, *P. B. Geuger, E. W. Ladd, W. J. Willard, J. S. Davis, F. E. Bassett

Harten & Co., Inc., Thomas J.—Display at offices, 212 Church St.

Hayes Mfg. Co.—Biltmore—*H. Jay Hayes, *E. D. Emmons, *David W. Pell.

Herschell-Spillman Co. — Manhattan — *Guy White, *E. O. Spillman.

Hide Leather & Belting Co.—Beta Theta Pi Club—*Arch H. Olds.

Hill Pump Valve Co.—Offices at 149 Church St.—*Nathaniel Leverone, *J. H. Wasserman, Robert Sidel.

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H. & N. Mfg. Co.—McAlpin—*W. H. DeFontaine, *J. K. Dalton, *L. B. Murphy, F. C. Wulf.

Holophane Glass Co.—Offices 340 Madison Ave.—*E. R. Treverton, William Long, E. J. Dailey, H. A. Grace.

Houpert Machine Co.—*N. W. Durnin, *H. J. Houpert.

Hyatt Roller Bearing Co.—Vanderbilt—A. P. Sloan, W. H. Woods, H. A. Broan, B. G. Koether, R. E. Wells, C. E. McConnell.

Imperial Brass Mfg. Co.—Office at 51 East 42d St.—*C. L. Newkom.

Inland Machine Works.—Office at 1777 Broadway—*D. F. Rose.

J. & B. Mfg. Co.—Astor—*F. A. Knight, E. B. Jacobson, George H. Southard, Jr.

Jiffy Jack Co.—Continental—*D. C. Kennedy, L. W. Perkins.

Judd & Leland Mfg. Co.—Astor—*C. B. Leland, M. L. Harlem.

Kalas Stamping Co.—(Not yet decided)—*Walter J. Leitheiser, J. Fraser Whitehead.

Kellogg Mfg. Co.—Yale Club—*M. R. Anstice, *J. F. Weller, *G. E. Hazard, Charles S. Munson, E. G Edwards

Keystone Rubber Mfg. Co.—Cumberland—*J. J. Braham, Jr., *H. V. Dodge, *M. V. Weller, *M. Fisher, *A. Meinken, J. G. Moomy, H. E. Moomy, J. Trunkett, William Goldbach.

Kokomo Electric Co.—Martinique—*J. P. Grace, *J. W. Johnson, *P. G. Chapman.

K. W. Ignition Co.—Astor—*C. Albrecht, *R. J. Eiseman, R. H. Bechtol, Warren R. Cox.

The Labriko Co.—(Not yet decided)—*J. Milton Zimmerman.

Lacharnay Carburetor Co.—*E. Cadgene, *O. Nordahl Giertsen, *Thomas Ed. Green, J. Pagerie.

Laminated Shim Co., Inc.—Office at 533 Canal St.—*B. Danach, Jr., C. S. Monson.

Lane Bros. Co.—Cumberland—*Charles H. Laird, Jr., George Lane, Silas Lane, J. S. Scott.

Langlands, Eric.—Office at 244 West. 49th St.—*Eric Langlands, Emanuel Blum.

Lipman Air Appliance Co.—Astor—*C. E. Lipman, W. W. Robinson, E. B. Lipman, H. H. Knepper.

Lumen Bearing Co.—Astor—*L. S. Jones.

McGee Glass Co.—Offices at 71 Murray St.—T. A. Jones.

McGraw Tire & Rubber Co.—Astor—*C. E. Miley, *W. E. Cameron, *E. E. Cowan.

McQuay-Norris Mfg. Co.—Astor—*L. A. Safford, *C. L. Derrickson, H. P. Marsh, H. W. Sweeney, G. W. Harkrader.

Martin Rocking Fifth Wheel Co.—Woodstock—*C. H. Martin.

Marvel Accessories Mfg. Co.—Astor—*S. I. Rose, Ed. Thalman, O. J. Kenzy, S. Miller, C. J. Colling.

Metal Specialties Mfg. Co.—Astor—*N. H. Oliver, L. W. Golden.

Metal Stamping Co.—*Otto J. Bauer, *William R. Noyes, *John F. Galvin, Jr., W. L. Carhart.

Miller Rubber Co.—Biltmore—*Messrs. Mills & Miller, F. C. Millhoff, F. P. Harrington, W. S. Campbell.

Miller Transmission Co.—Knickerbocker—*Dorr Miller, *Edmund Quincy, E. R. Packer, C. A. Gaskill.

Morse Chain Co.—Engineers' Club—*Frank L. Morse, *F. C. Thompson, W. W. Bertram, C. W. Cousens.

W. R. Mosier & Co.—Cumberland—*J. W. Fischer, *H. A. Wattensheit, *L. G. Folck, *H. H. Meyer, *Charles Schramm, *I. W. Becker, *Milton Jacobs, *I. H. Sollin.

Frank Mossberg Co.—Astor—*H. E. Ring, E. W. Scott, F. G. Valpey, D. L. Herman, F. W. Lynn, F. T. Chase, W. I. Tuttle, J. W. Money.

Moto-Meter Co., Inc.—Factory at 15 Wilbut Ave., Long Island City—*W. G. Lozier, Robert P. Nichols, J. Tobias.

Motor Specialties Co.—Astor—*F. C. Hersee, *A. Fraser, Don Bailey, S. T. Jessop, Fred H. Thompson, George Fritz, Jr.

L. J. Mutty Co.—Waldorf—*E. P. Murray, *W. N. Shelton, *V. H. Mutty, L. J. Mutty.

National Tractor Co.—Biltmore—*W. K. Byington, *Leroy A. Kling.

New Era Spring & Specialty Co.—Astor—W. S. Daniels, H. P. Rhodes, Burton Wilson.

North East Electric Co.—Manhattan.

Northwestern Chemical Co.—Astor—*F. R. Hall, *G. Sam Scott, *R. M. Tussing, V. V. Casey, S. E. Samuels, F. H. Fisher.

Oakes Co.—Biltmore—*W. H. Oakes, *W. D. Oakes, *Louis Schwitzer.

Parry Mfg. Co.—Astor—*L. P. Henderson, *E. J. Herrmann.

Pennsylvania Steel Car Co.—Knickerbocker—*William Anthony Kuser, John F. Carson, Cecil H. Sherman.

Perry Auto Lock Co.—Office at 1695 Broadway—*E. W. Hogle, Martin C. Powers.

Philips-Brinton Co.—Astor—*J. D. Philips, C. S. Mattison. Biltmore—Edwin S. Philips, William C. Brinton, Jr.

Pratt Mfg. Co., Wm. E.—Martinique.—*Richard Englemann, *W. C. Mathy, *H. E. Pratt.

The Prismolite Co.—McAlpin—*Frank S. Stimson, *R. A. Wadsworth, R. E. Ackland.

Reflex Ignition Co.—Breslin—*W. R. Vick.

Rex Mfg. Co.—Biltmore & Manhattan—*C. C. Hull, *M. R. Hull, *E. W. Ryan, *H. M. Bock, *N. A. Crawford.

Rose Mfg. Co.—Woodstock—*George W. K. Voigt.

Ruddiman Co., F. G.—McAlpin—*F. G. Ruddiman, F. L. Marvin.

Sager Co., J. H.—Park Ave. Hotel—*J. H. Sager, *C. J. Iven, C. M. Sager.

Schutte Body Co., Charles.—McAlpin—*C. E. Schutte, Oscar Petters.

Shaler Co., G. A.—McAlpin—*E. B. Carroll, R. B. Dunlap, R. E. Malone, W. R. Melcher, F. H. Ford.

Sharp Spark Plug Co.—Martinique—* W. E. Hooker, *A. W. Houlding, C. J. McDonald, W. W. Turney.

Silvex Co.—Astor—*E. H. Schwab, *William N. Davidson, *W. H. Lumpkin.

Smith Wheel, Inc.—Astor—*J. C. Neville, *E. S. Gordon, *E. W. Snyder.

Sparks-Withington Co.—Astor—*C. Falkenburg, *R. O'Reilly, William Sparks, F. Rogers.

Speer Carbon Co.—Waldorf—*W. E. Green, *A. A. Wisersky, J. E. Speer, G. P. Fryling, J. Belmont Masser.

Spencer Metal Products Co.—McAlpin—*George G. Bouthinon.

Spiitdorf Electrical Co.—Astor—*R. W. Sutherland, at office at 7 West 61st St.; *W. H. Gudlestone.

Standard Parts Co.—Biltmore—Christian Girl, P. A. Connolly, E. J. Hess, W. E. Bock, Dan C. Swander, W. E. Perrine, H. H. Newsom, W. C. Keyes, J. G. Utz, W. P. Culver, D. K. Moore, B. A. Quayle, B. R. Winborn, C. E. Pelton, James A. Braden, Walter C. Voss, A. C. Bergmann, H. A. Goddard, R. T. Armstrong, H. E. Figgie, C. E. Clemens, Art. A. Stengle, W. Stutson, J. H. Burgess, E. L. Jones, Harry Roettinger, Thomas Zimmerman, O. H. Jobski, R. H. Brown, R. A. Townsend.

Standard Roller Bearing Co.—Biltmore—*H. M. Owsley, F. M. Germane, L. M. Watkin, C. B. Wisenburgh, J. W. Drown.

Sterns Tire & Tube Co., Inc.—Waldorf—*W. L. Burgess, *O. L. Menzing, Frank Kantrowitz, A. M. Ackerman, S. Drubin.

Stevens & Co.—(Special exhibit at Astor, only)—*Louis Schwab, *L. C. Huntington, *Paul Rinck, *W. S. Kyte, *William Deutsch.

Stewart-Warner Speedometer Corp—Astor—*V. N. Hansen, *G. B. Wright, C. B. Smith, W. J. Zucker, F. H. Martin, S. A. Douglas, Webb Jay, Berne Nadall, J. H. Poppert, G. L. Henry, W. R. Moore, T. J. Lannon, J. H. Smith, C. C. Secrist, Thomas M. Hart, Charles Mead.

Super Spark Co., Inc.—Knickerbocker—*L. M. Gelman, *B. F. Hickerson, B. F. Glines, Mr. Kahn.

Superior Lamp Mfg. Co.—*H. Futterman.

Taft-Pierce Mfg. Co.—St. James—*R. E. Carpenter, A. H. Mitchel, E. R. Abott, Z. E. Riley, C. O. Cromwell.

Thermoid Rubber Co.—Astor—*H. F. Blanchard, H. R. Portugal, C. E. Brelsford.

Tuthill Spring Co.—Manhattan—*D. S. Campbell.

Twitchell Gauge Co.—McAlpin—*Max D. Bendel.

U-Auto-C Corp.—Offices at 2156 Broadway—*William D. Holland, *R. C. Rasmussen.

United States Air Compressor Co.—Astor—*George A. Hunter, R. L. Bacher.

United States Gauge Co.—Offices at 67 Wall St.—*Matthew M. Lawler, Wayne Burns, R. E. Bruckner, George R. Beamer, Otto Hesborn.

Universal Tool Co., Inc.—Marseilles—*Robert E. Roseberry, *C. H. Hinckley, H. V. Welles.

Van Sicklen Co.—Biltmore—*L. O. Anderson, *F. B. Wood, C. F. Van Sicklen, N. H. Van Sicklen, Jr.

Veeder Mfg. Co.—Claridge, Holland, Prince George—*E. B. Smith, *W. C. Waldo, D. J. Post, C. H. Veeder, C. A. Rossberg, E. H. Crosby.

Wakefield Brass Co., F. W.—McAlpin—(Headquarters & display), *Martin L. Richards.

Water Gas Carbureter Co.—Offices at 347 Fifth Ave.—*A. H. Van Doran, J. H. Whittmann.

Weaver Mfg. Co. — McAlpin — Charles F. Hodgson, *I. A. Weaver, J. F. Chumblert, Ralph Waldt.

West Side Foundry Co.—McAlpin—*H. Oakley Sharp.

Wheeler-Schebler Carbureter Co.—Astor—*George T. Briggs, F. B. Homburgh, J. C. Nichols, R. W. Dougherty, J. H. Jensen.

Whitney Mfg. Co.—McAlpin—*C. E. Wertman, W. J. Belcher, E. C. Ireland. Prince George—*W. W. Totman.

Willard Storage Battery Co.—Claridge—*R. J. Nightingale, *A. C. Hyser, *A. W. Sayer, *S. S. Jenkins, *C. S. Whitney.

Wilson Body Co., C. R.—Astor—*C. Haines Wilson, *George D. Wilson, *R. A. LaBarre.

Wonder-Mist Co.—Manhattan—*O. A. Cunningham, *W. H. Luckett.

Woodworth Mfg. Corp.—Bristol—*C. B. Woodworth, *A. P. Marshall, *D. Woodworth.

"X" Laboratories—Astor—*L. J. Stern, E. R. Tolfree, E. L. Rowe.

CARS AND TRUCKS

Acason Motor Truck Co.—Claridge—*J. F. Bowman, *H. A. Conlon.

Anderson Motor Co.—Martinique—*W. A. Anderson, *J. W. Anderson, S. S. Blackburn, M. W. Kerr, H. G. Hobbs, J. G. Anderson.

Bethlehem Motors Corp.—Plaza—*A. T. Murray, *W. S. Stevenson, *Roy Dewey.

Columbia Motor Truck & Trailer Co.—Claridge—*Leigh Lynch, F. G. Clark.

Columbia Motors Co.—Vanderbilt—*W. L. Daly, *F. E. Sangbush, *R. W. Ingersol, *E. W. Van Duzen, J. G. Bayerline, A. J. O'Connor, R. A. Long.

Duplex Truck Co.—Astor—*H. M. Lee, *A. Langenbacher, H. Loeffler.

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Fulton Motor Truck Co.—Waldorf—*William F. Melhuish.

Grant Motor Car Corp.—Astor—Also headquarters, 1790 Broadway—*R. R. Hall, *T. W. Simpson, David A. Shaw, Geoge S. Waite, E. W. Corman, George S. Salzman, James Howe.

Hercules Motor Truck Co.—Astor—*E. M. McLean.

Lexington Motor Co.—Biltmore—*F. B. Ansted, *Emery Huston, *R. J. Irvin, F. I. Barrows, L. A. Hanson, J. C. Moore.

Moline Automobile Co.—Biltmore—C. H. Van Dervoort, *W. J. Boone, *D. M. Beal.

A. Nelson Mfg. Co.—McAlpin—*E. A. Lampe.

Nordyke & Marmon Co.—Biltmore—*H. H. Rice, *F. E. Moskivics, *H. H. Brooks, Harry Fosdick, E. D. Wood, E. D. Shultz.

Selden Truck & Sales Co.—Biltmore—*Hal T. Boulden, George C. Gordon, R. H. Salmons, James E. Morse, C. E. Collard, C. N. Gillette, W. T. Morton.

Smith Motor Truck Corp.—Claridge—*D. W. Figgis, *Berry Rockwell, *N. S. Gotshall, *C. A. Strieby.

Standard Steel Car Co.—Astor—*F. C. Van Derhoof, *H. A. Houser, Roy Lasher, O. E. Barttell, H. L. Hornberger.

Stanley Motor Carriage Co.—Algonquin—*John H. Wright, *Guy Myers, Frank Jay, E. M. Hallett, S. C. Crane.

JOBBERS

Auto Supply Co. of Baltimore—Astor—*Thomas G. Young.

Auto Supply & Tire Co.—Astor—*C. L. Johnson.

Automobile Supply Co.—Astor—*T. M. Brooks.

Automobile Supply Co., Inc.—McAlpin—*E. W. Reynolds.

Ballou & Wright.—Astor—*C. F. Wright.

Baughman Co., G. Norman.—Astor—*G. Norman Baughman.

Becker Auto Co.—Astor—*R. E. Becker.

Beers Bros. Co.—Astor—*W. S. Van Horn, *P. C. Beers.

Belcher & Loomis Hardware Co.—Astor—*Charles A. Paine.

Boice-Perrine Co.—Woodward—*Lester Perrine.

Brownell Co., H. F.—Astor—*H. F. Brownell.

Butts & Ordway Co.—Navarre—*R. E. Cross.

Cameron & Barkley Co.—Biltmore—*J. T. Jenkins, M. S. Wiles.

Central Tire Co.—Astor—*C. L. Durham.

Chanslor & Lyon Co.—McAlpin—*T. A. Walsh, *P. H. Lyon.

Chicago Automobile Supply House—Astor—*William M. Weber.

W. E. Cody Co.—Herald Square—*R. K. Cody, *E. L. Cook.

Coggins & Owens—Astor—*William A. Owens.

Cumings Bros.—Waldorf—*E. M. Cumings.

Cutten & Foster—McAlpin—*W. L. Moncur.

Dine-De Wees Co.—Astor—*H. M. Dine.

Electric Appliance Co.—Astor—*W. W. Low.

Foster Auto Supply Co.—Astor—*J. N. Foster.

Front-Market Motor Supply Co.—Astor.—*Troy B. Wildermuth, *Edgar W. Kent, R. E. Wildermuth.

Gaul, Derr & Shearer Co.—Knickerbocker—*M. Shapiro, G. B. Shearer, F. P. Gaul.

Hagberg Auto Supply Co.—Astor—*Ray Simpson, *C. A. Hagberg.

Herring Motor Co.—Vanderbilt & Astor—*C. L. Herring, W. E. Wissler, J. Z. Beamer, L. L. Wissler.

Hilliard & Yokes Co.—Cumberland—*P. E. Yokes, *O. H. Hunter, R. D. Hilliard, W. H. Snyder.

Hyslop Brothers, Ltd.—Prince George, *A. M. Bottcher. Waldorf—G. M. MacWilliam, William Hyslop.

Interstate Electric Co.—Knickerbocker—*Percival Stern.

Kansas City Automobile Supply Co.—Navarre—*Otto Wittmann.

Kelley-How-Thomson Co.—Biltmore—*W. R. Hay.

Master Sales Co.—Knickerbocker—*M. S. Livingston.

Millen & Son, John, Ltd.—Martinique—*J. E. Millen, *J. A. Bennet, W. E. Cheese.

Missouri Auto Specialty Co.—Astor—*L. E. Allmon.

Motor Car Equipment Co.—Headquarters, 19 West 62d St.—E. G. Carbrey, G. Ledner, L. G. Hartdorn, J. Jackson, J. J. Burke, P. J. English, E. J. W. Toye.

Motor Car Supply Co.—Astor—*Sidney F. Beech.

Motor Car Supply Co., Ltd.—McAlpin—*L. A. Cavanaugh.

Myers & Co., Inc., M. P.—Manhattan—*L. C. Bolles.

Nebraska-Buick Auto Co.—Waldorf—*H. E. Sidles, Lee Huff.

Northwestern Auto Supply Co.—Astor—*E. C. Guthard.

Owens-Merritt Co.—McAlpin—*S. J. Owens. W. L. Clark, J. M. Browne, H. E. Vincent.

Ozburn-Alston & Co.—Astor—*N. F. Ozburn, *E. H. Baughman.

Powell Supply Co.—Knickerbocker—*Clarke G. Powell.

Providence Auto Equipment Co.—Woodstock—*Francis F. Kellogg.

Roberts Electric Supply Co., H. C.—Herald Square—*H. S. McConnell.

Roberts-Toledo Auto Co. — Astor — *Stanley Roberts.

Roehm & Davison—Manhattan—*H. Roehm. Jr.

Sieg Co.—Astor—*R. R. Englehart.

Southern Auto Supply Co.—Felix-Portland—*D. A. Graves, G. B. Allen.

Spencer-Carroll Co.—Astor—*C. E. Scott.

Talman Auto Supply Co.—Martinique—*D. T. Talman, *H. B. Gates.

Tarbell-Watters Co., Inc.—Woodstock—*E. N. Tarbell, *F. B. Watters.

United States Rubber Co.—McAlpin—*H. W. Volbrecht.

Waite Auto Supply Co.—Astor—*B. D. Waite, H. L. Waite.

Western Rubber & Supply Co., Inc.—Astor—*H. H. West.

Where Are We At?

(*Continued from page 7*)

False reports of fabulous profits made by dealers caused many to enter the field. Many have entered but few have made money. The number of dealers must be cut down, perhaps 10 per cent, it may be 15 per cent, and it is possible the number may be reduced from 25 to 35 per cent.

The retail field has been labeled as the most inefficient field in the world. Compared with retailing, manufacturing is highly efficient. Perhaps the following comparison may suggest a reason for the lack of efficiency in retailing. This applies not merely to motor cars but to all retail work.

Take three men, Tom, Dick and Harry, all brothers. Tom wants to be a plumber and before he can start in business he must learn his trade. He must serve an apprenticeship. Dick wants to become a tailor, and he, too, must learn his trade before he can hang out his shingle. But fortunate Harry is going to be a storekeeper, a grocer, if you please.

He has no apprenticeship to serve. He just starts in business without knowing anything about the job, and is pretty certain not to make any money and perhaps make a very bad failure. The jobber helps him along on that easy road to failure because the jobber is so anxious to get his goods on the counters that he stocks up for this amateur retailer and so hurries him on his path to ruin. Perhaps stocks him with goods not suited for the trade in that vicinity, or he may commit many similar errors.

This condition all works to make the retailer a wasteful person, and when war comes along, wastes are the first to be cut down. *They must be cut down.*

Dealers With Little Training

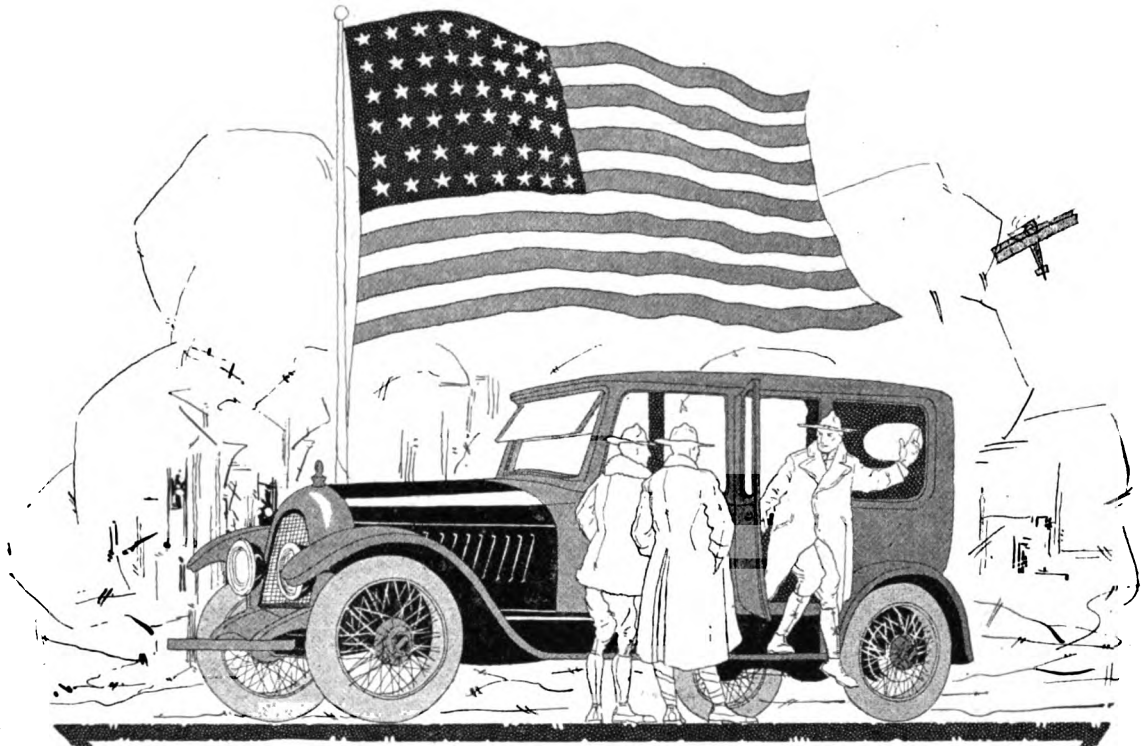
Now looking at the motor car retailing, there are hundreds and thousands in the business who never had any preliminary training in retailing. Their business has been wasteful, and such waste must go in these war days. Such dealers have scarcely a real reason for existence and in many cases, very many, the industry will be better without them.

This has been happening and is going to continue to happen. But we must not get upset. We must not stampede when this happens. The good dealer has little to fear. He is like the good banker, the good manufacturer, the good doctor and the good lawyer. There is always plenty of room at the top for those who excel.

To-day every dealer has a good chance to discover whether he is a good one or not. If he has not already started turning the searchlight on himself he should start at once. Wasteful business cannot continue during this war. There will be tens of thousands of dealers when this war is over, and they will nearly all be good dealers. They will have good accounting systems. They will know the cost of every department. They will know how much to allow for used cars. They will know how to get cash instead of bad accounts. They will know how to advertise judiciously. They will have a good office system. They will handle correspondence as it should be handled. They will modify their business according to the demands of war. They may substitute their entire male sales force for a female sales force. They will study conditions every day, and by watching changing conditions will keep in good condition until the war is over.

To-day is a day of both trial and opportunity.

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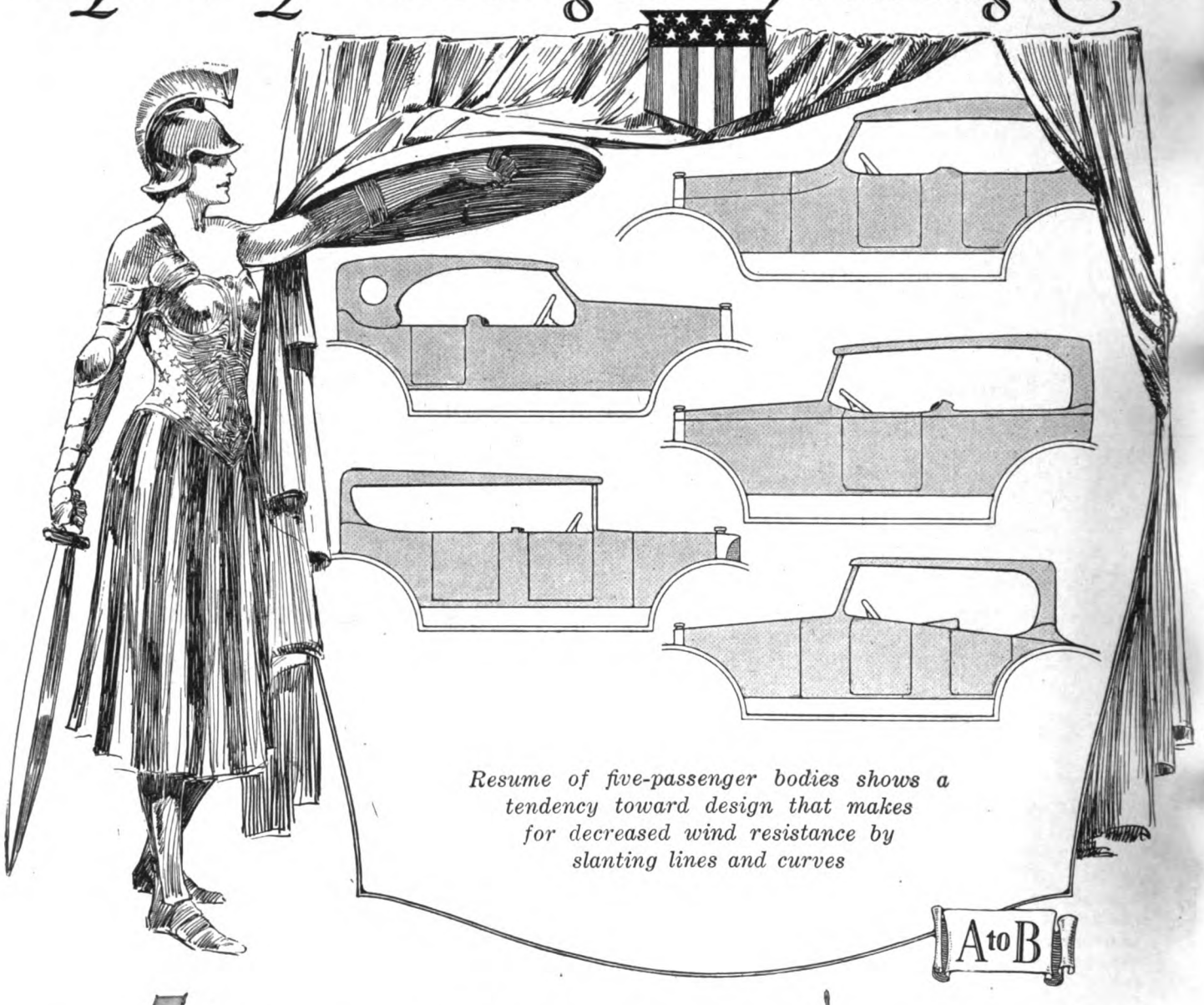


AMERICA'S PASSENGER CARS

1918

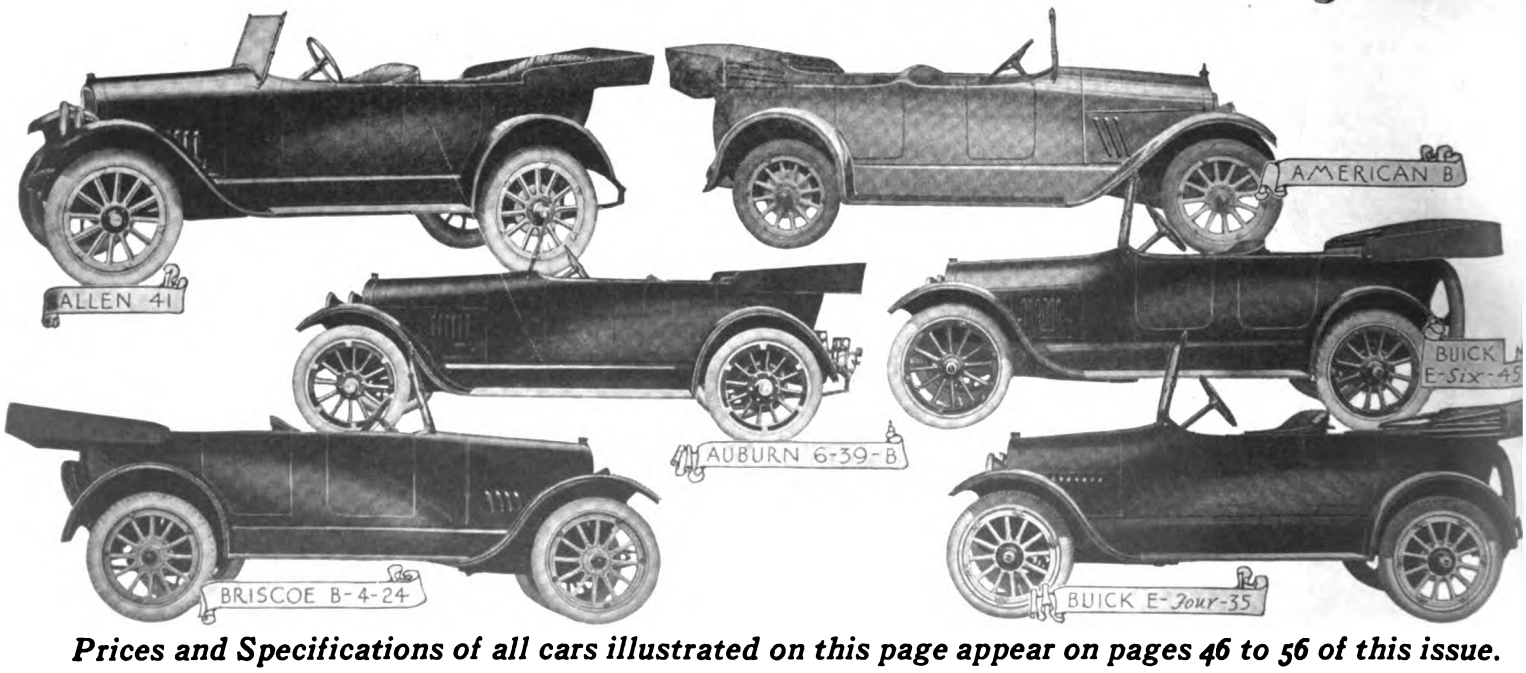
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Five-Passenger Touring Cars



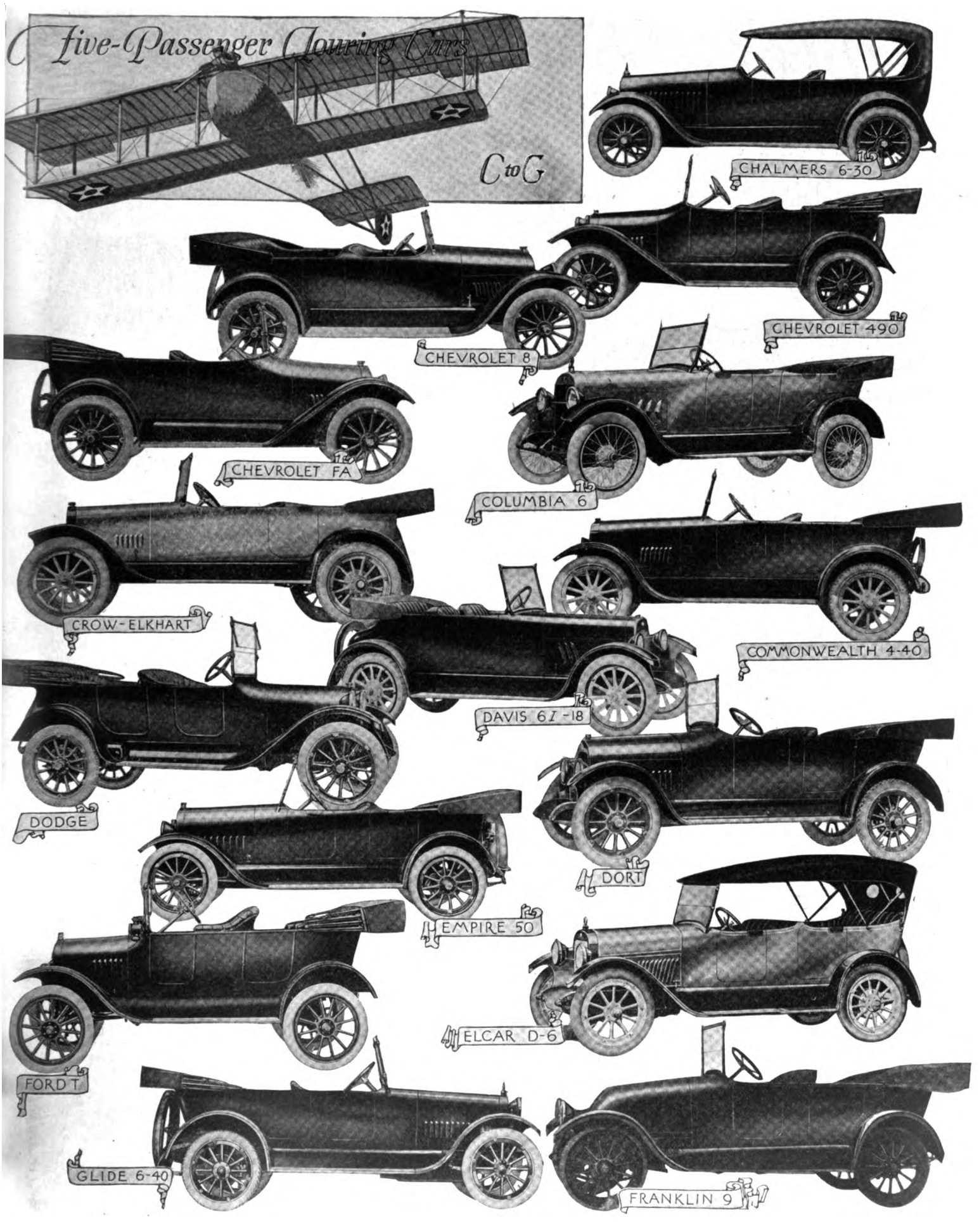
Resume of five-passenger bodies shows a tendency toward design that makes for decreased wind resistance by slanting lines and curves

A to B



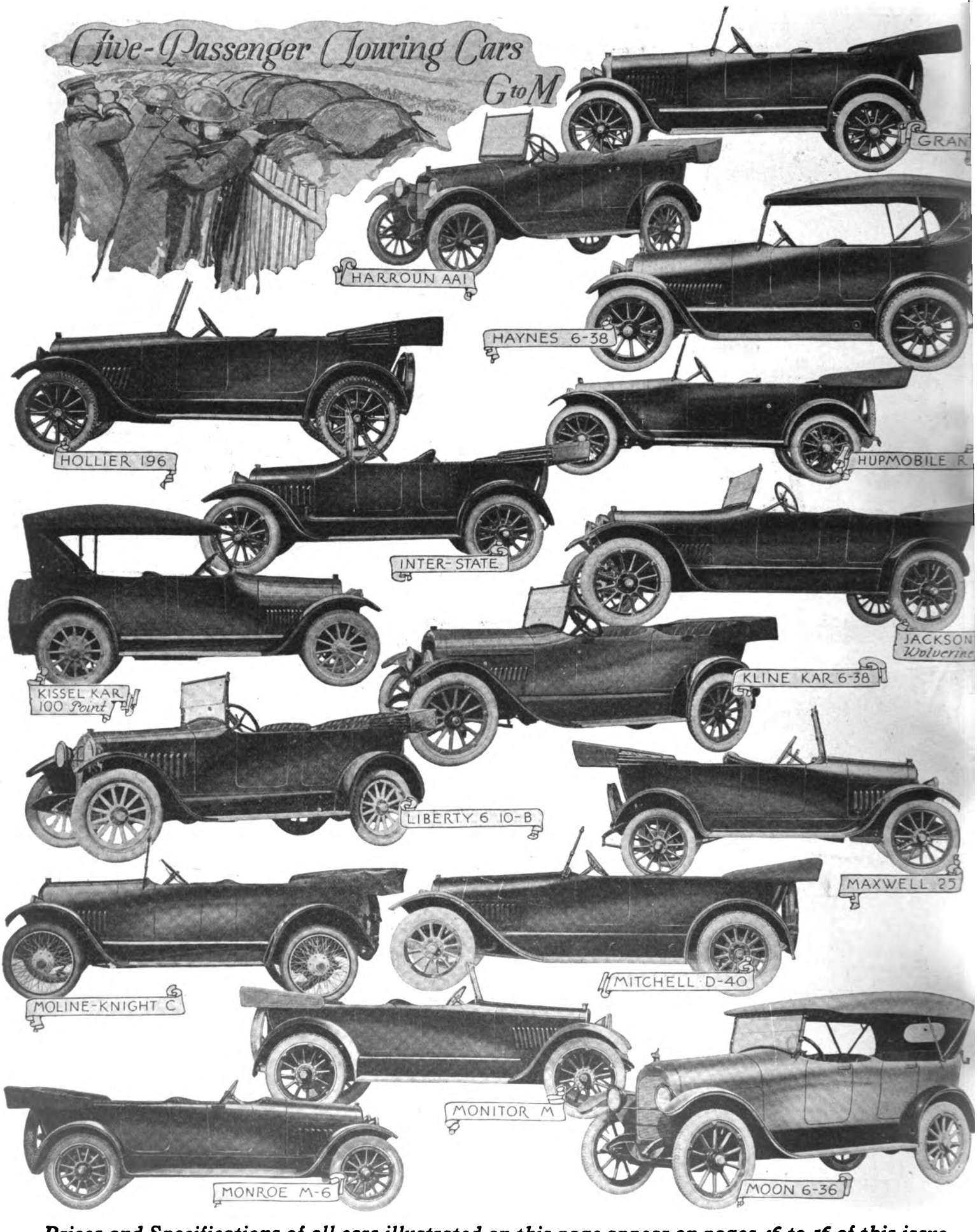
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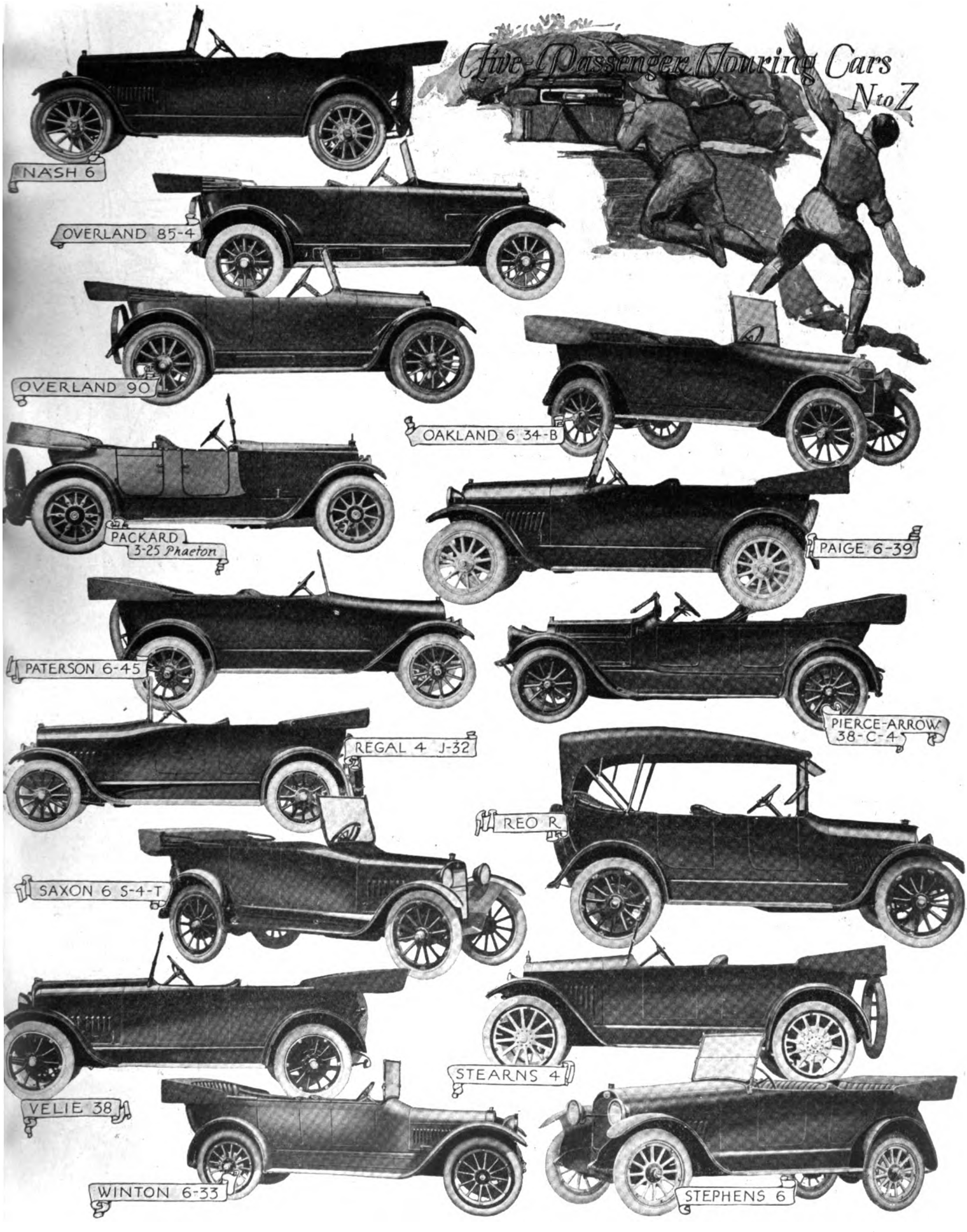
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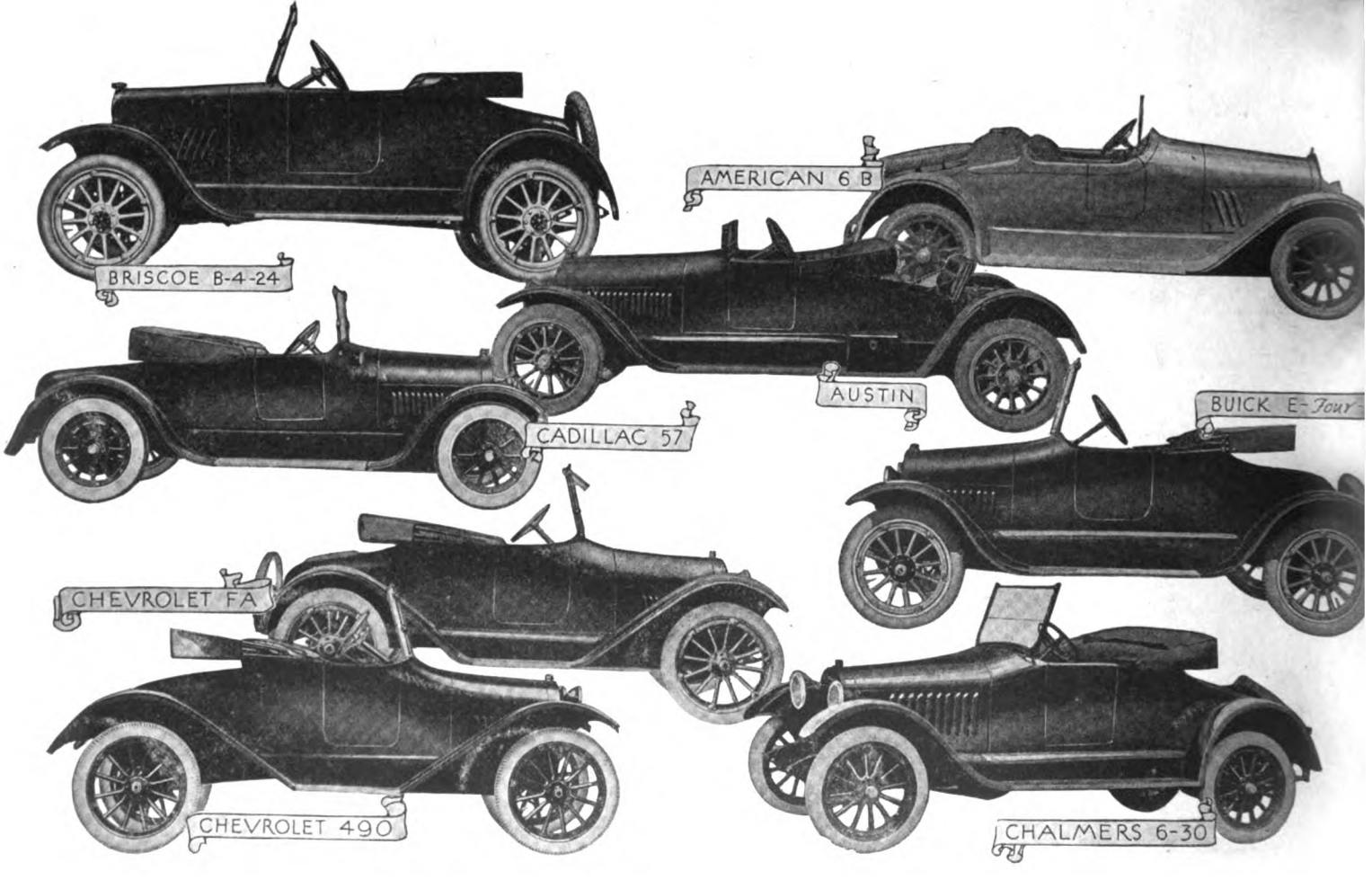
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Modern ingenuity has devised various seating arrangements for roadster and runabout. Among them is the four-passenger, the three-passenger and the one-seat car



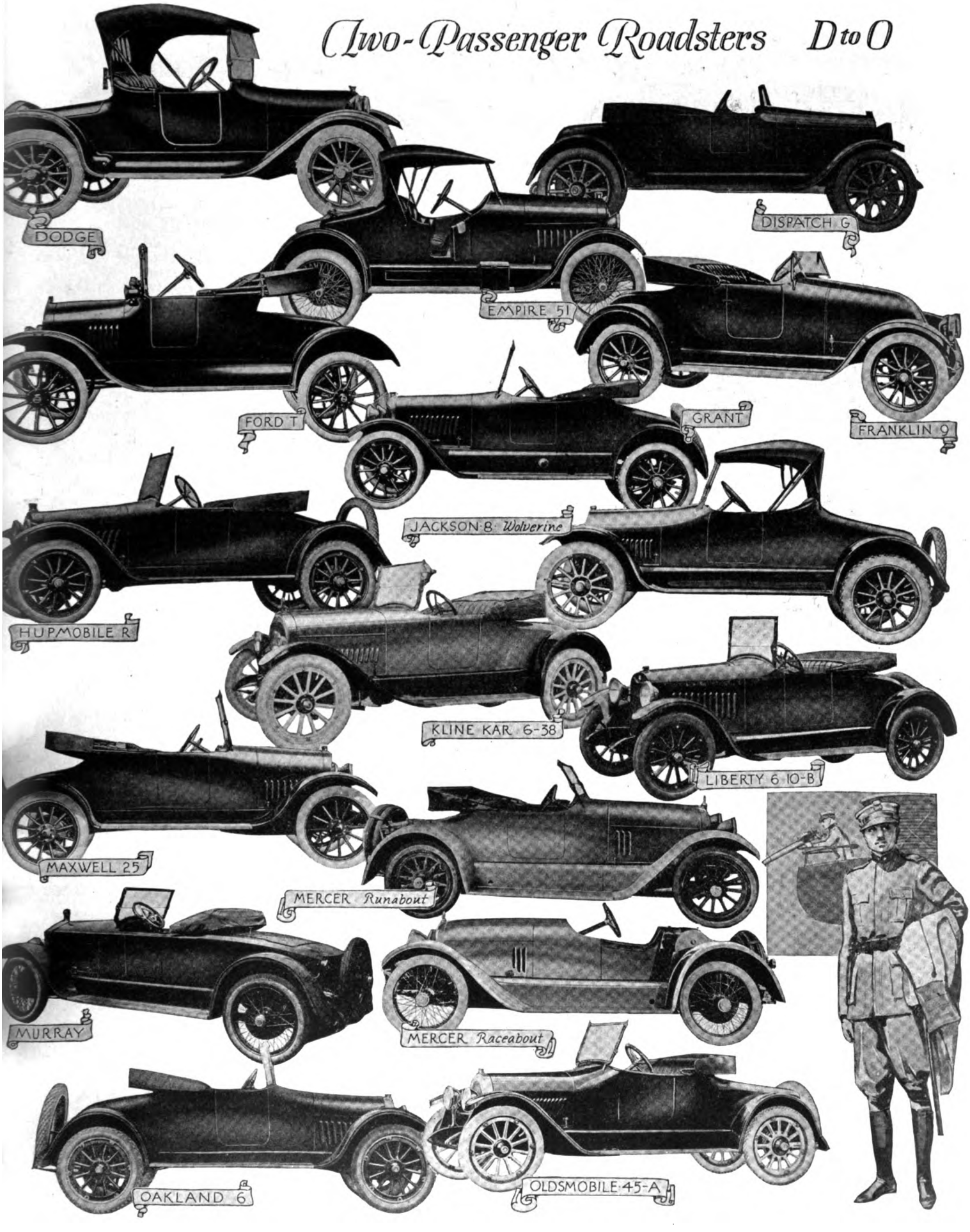
Two-Passenger Roadsters A to C



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Two-Passenger Roadsters D to O



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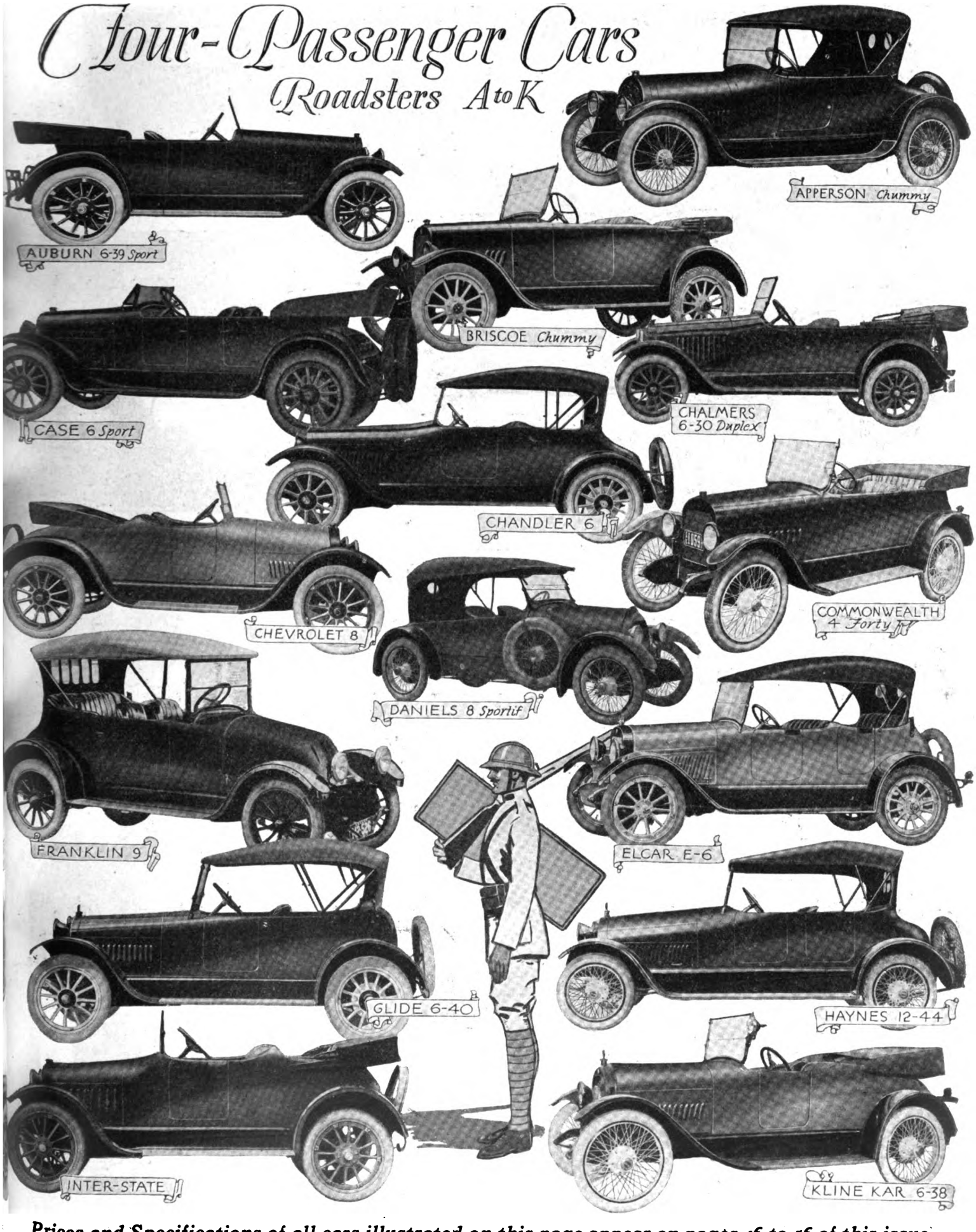


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Four-Passenger Cars

Roadsters A to K

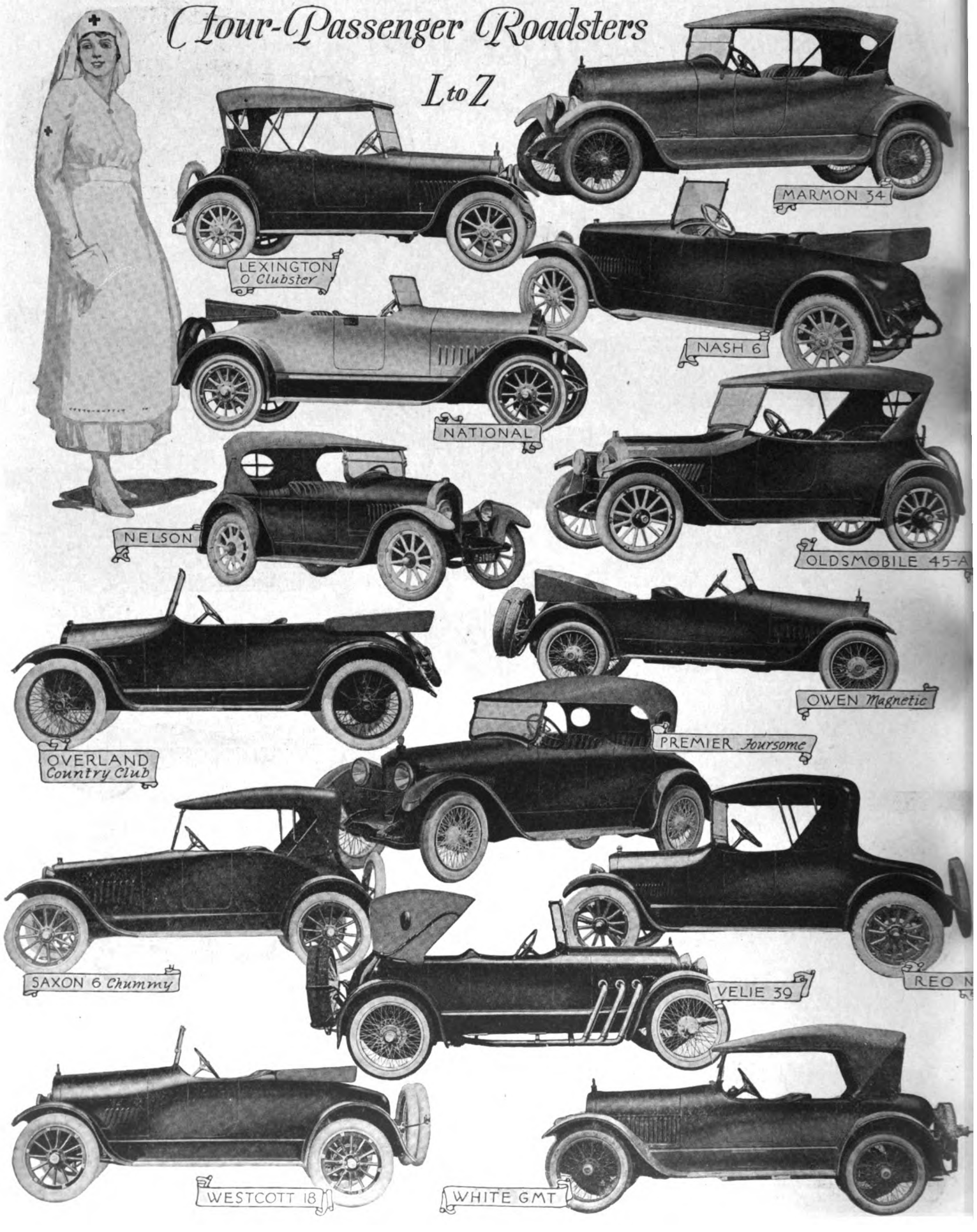


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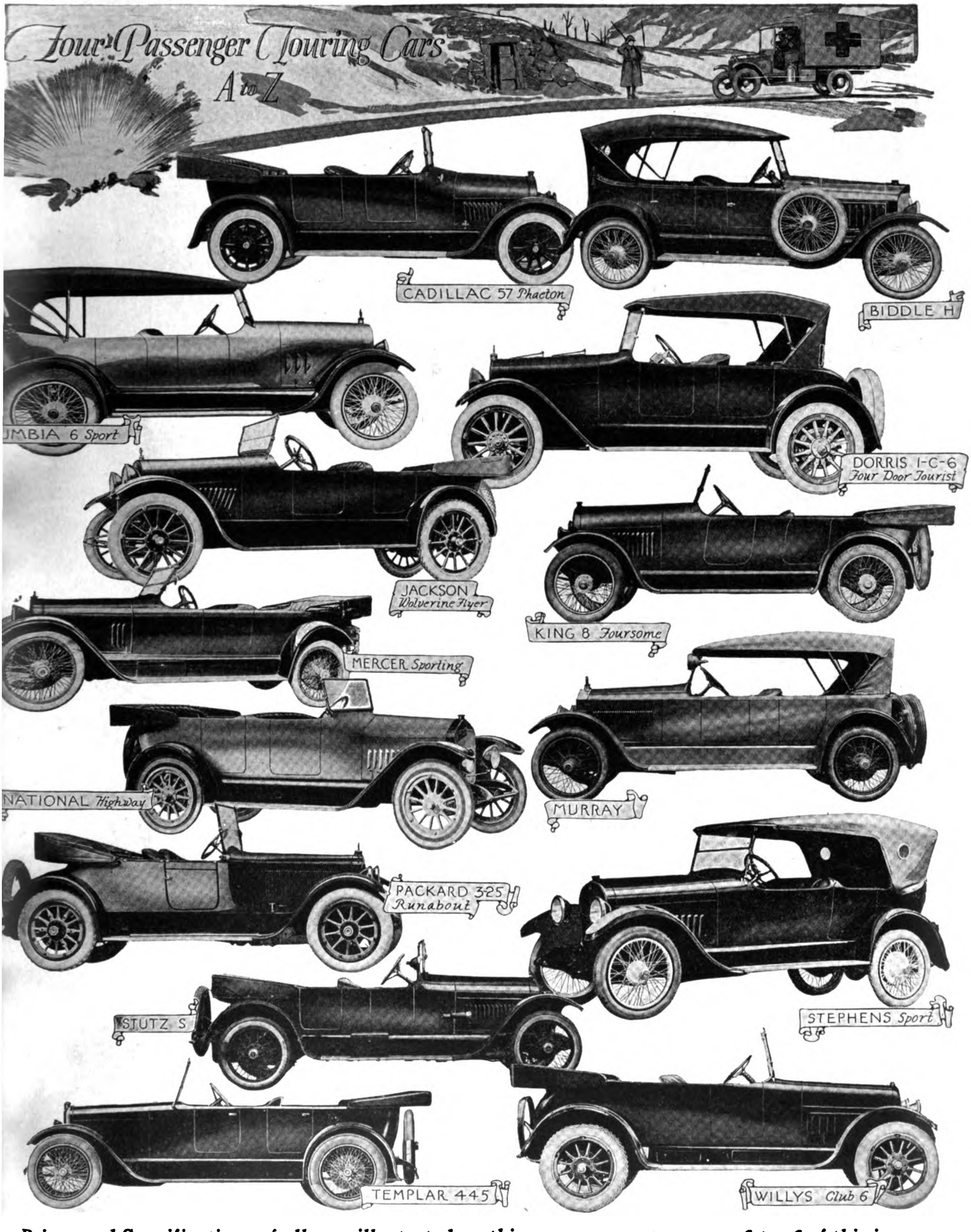
Four-Passenger Roadsters

L to Z



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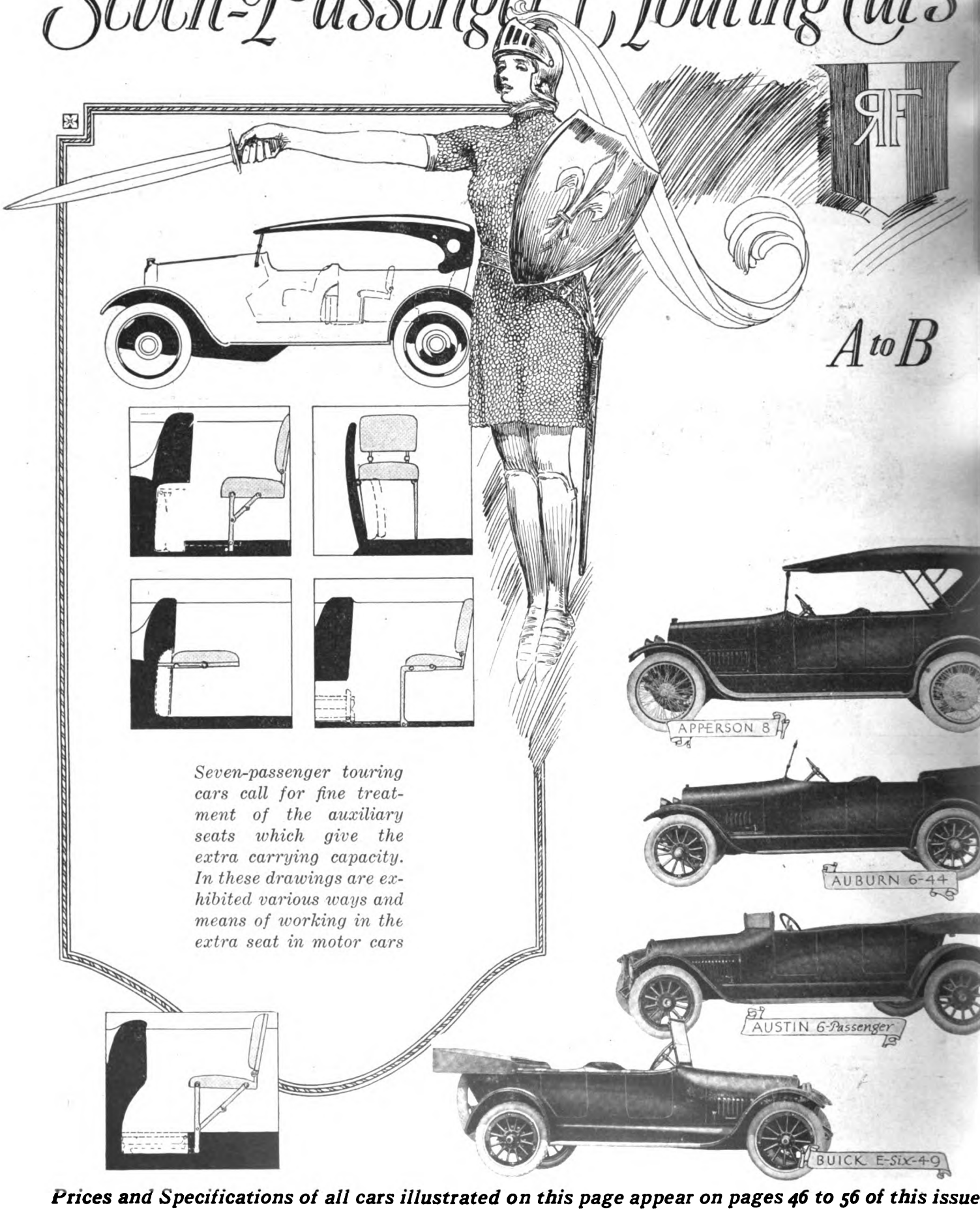
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Seven-Passenger Touring Cars



Seven-passenger touring cars call for fine treatment of the auxiliary seats which give the extra carrying capacity. In these drawings are exhibited various ways and means of working in the extra seat in motor cars

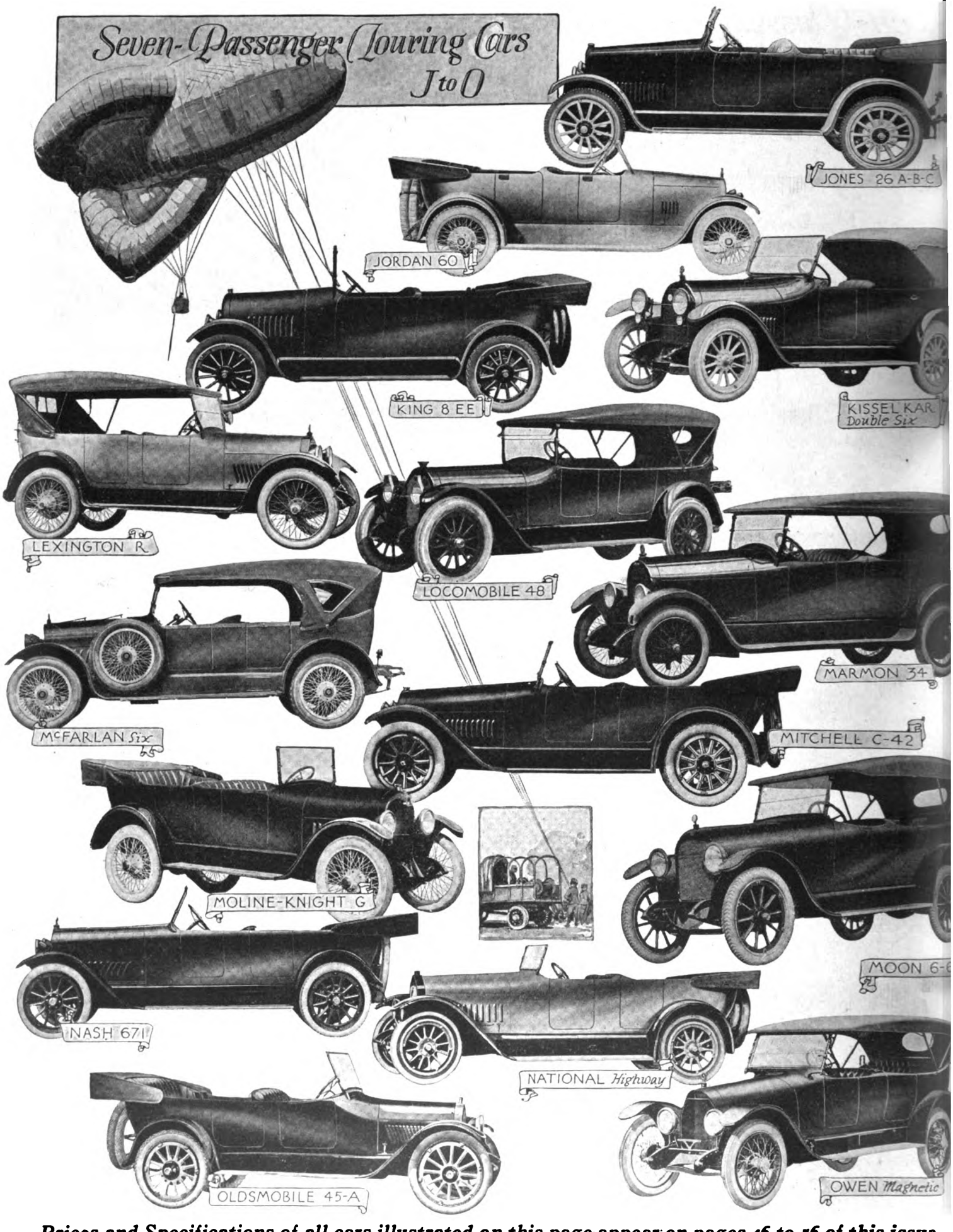
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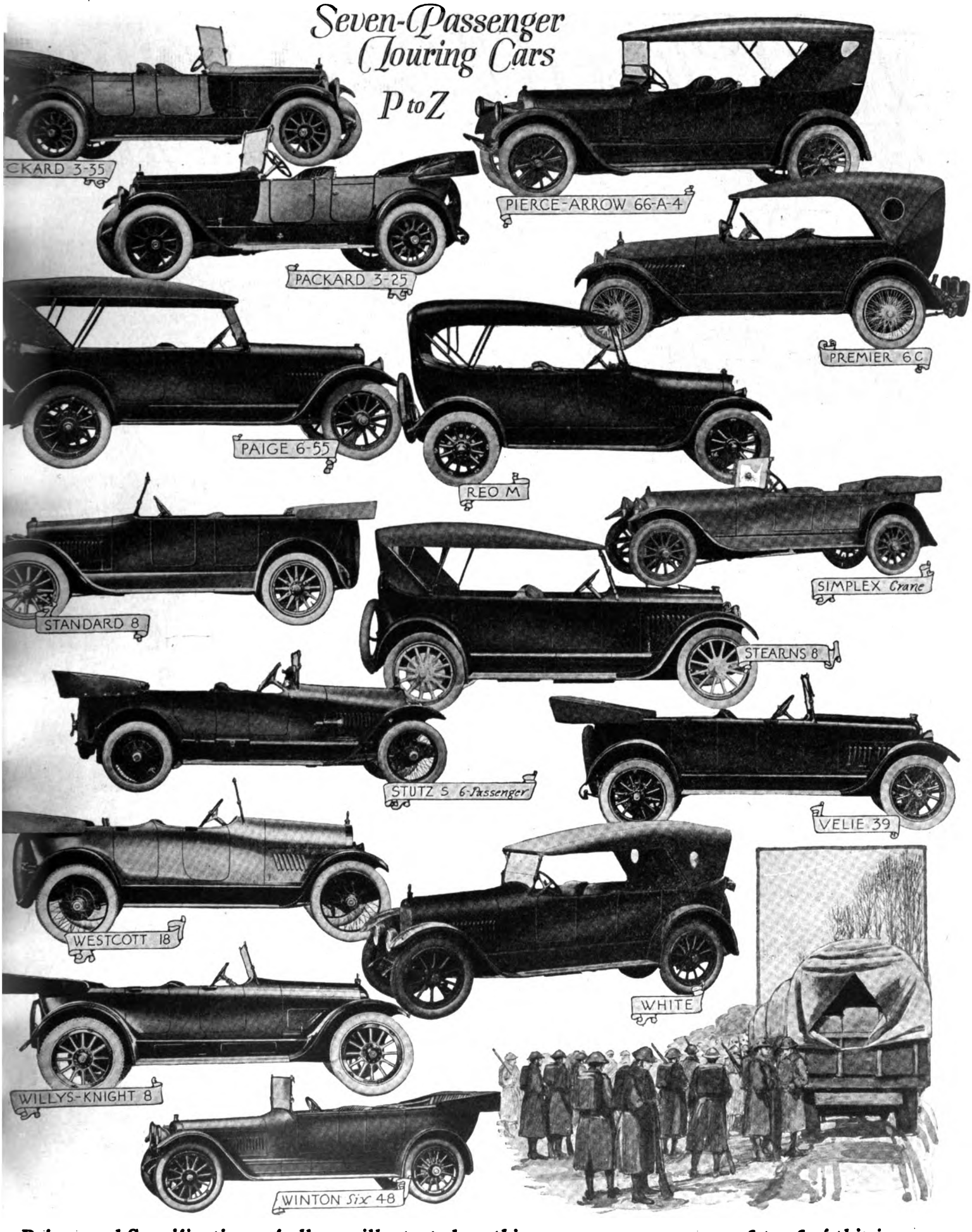
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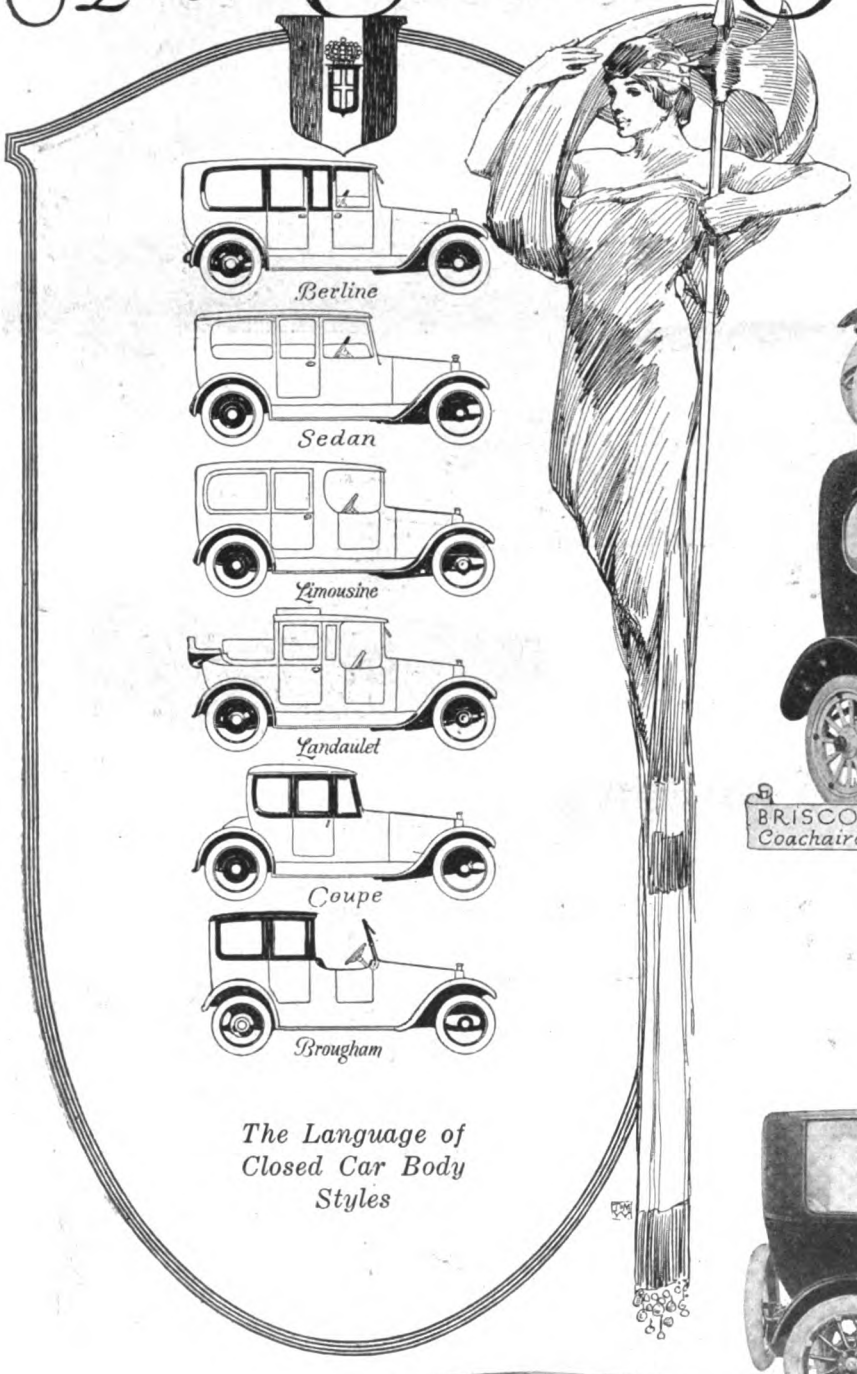


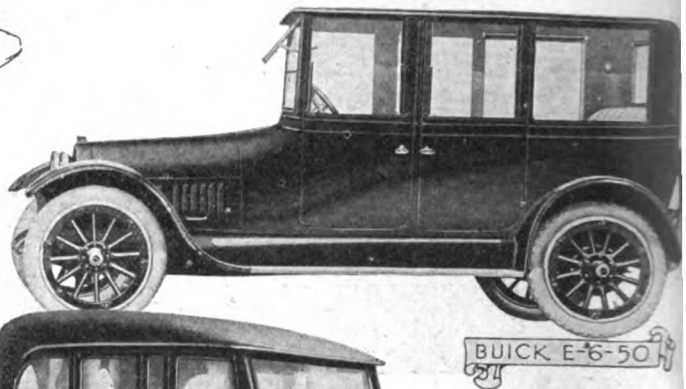
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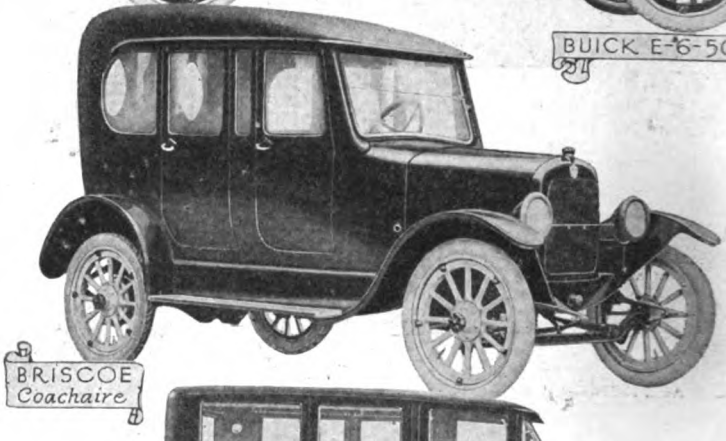
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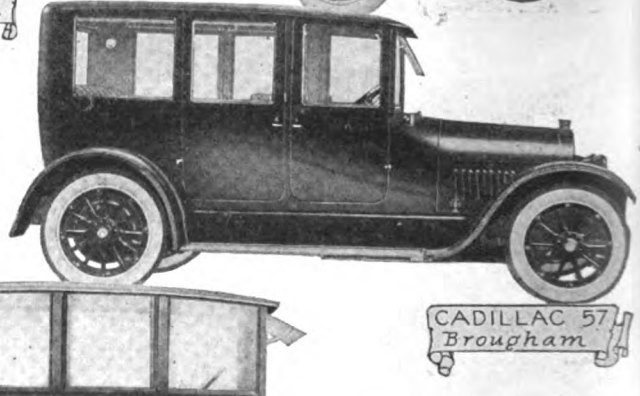
The Closed Car Group

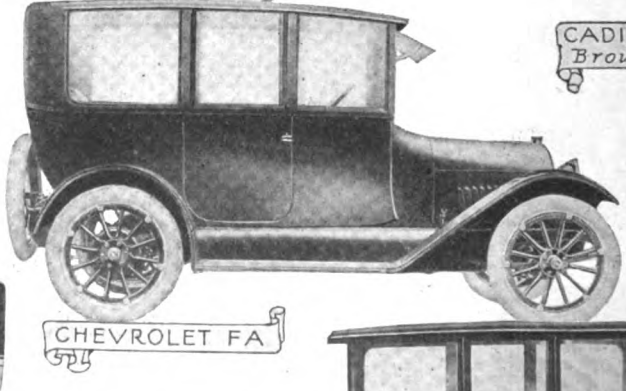
Sedans A to E

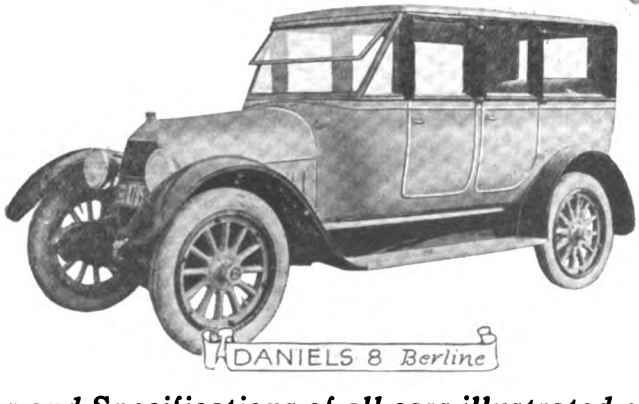


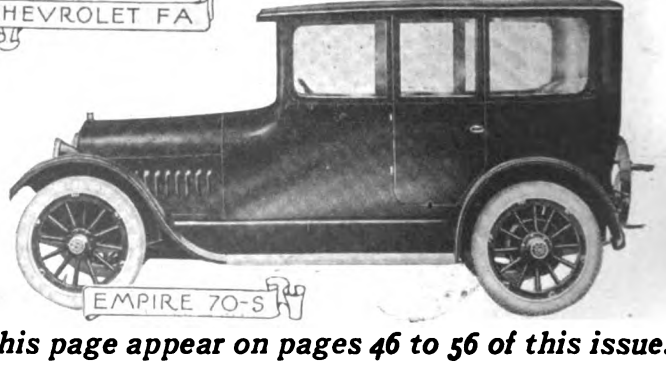






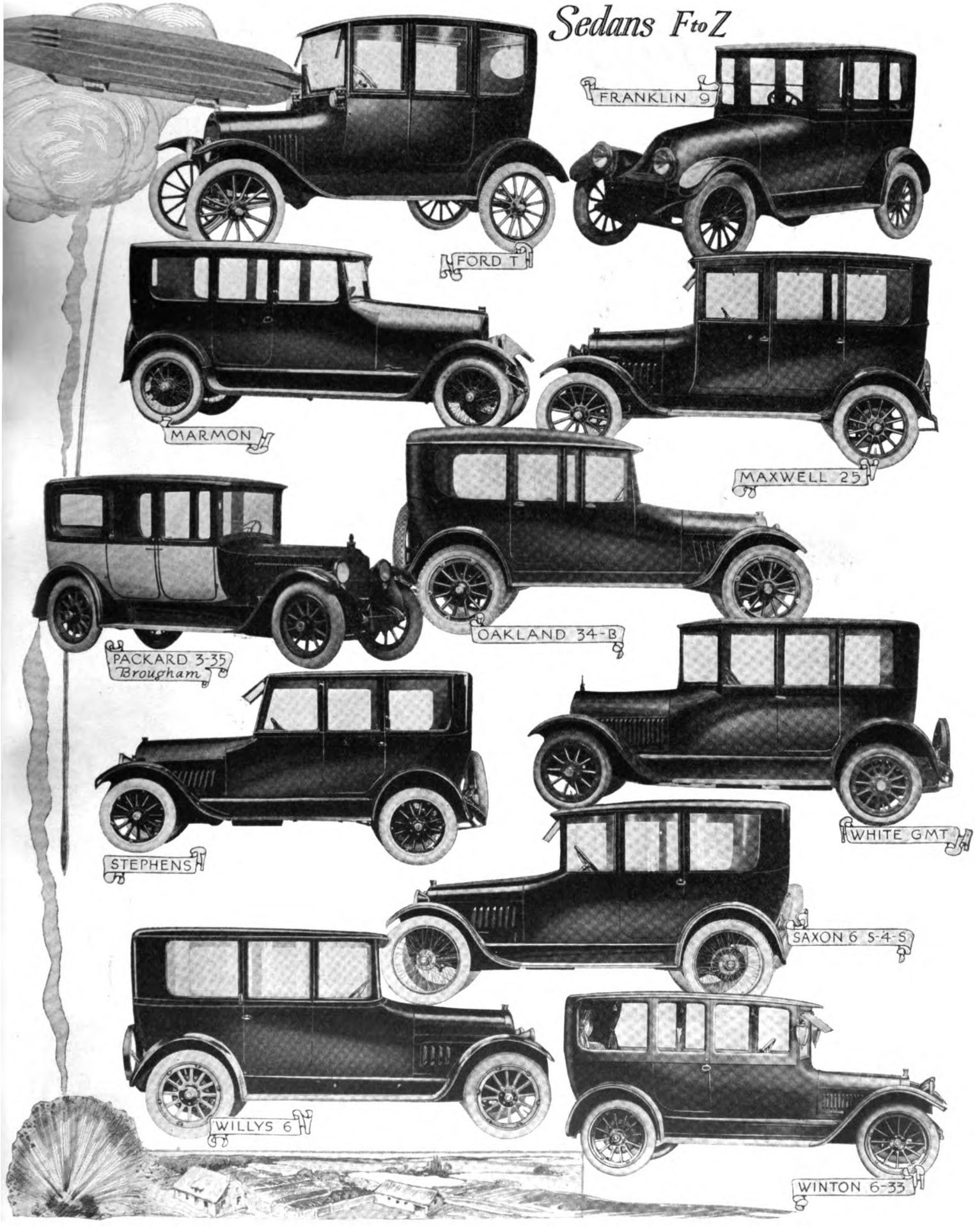






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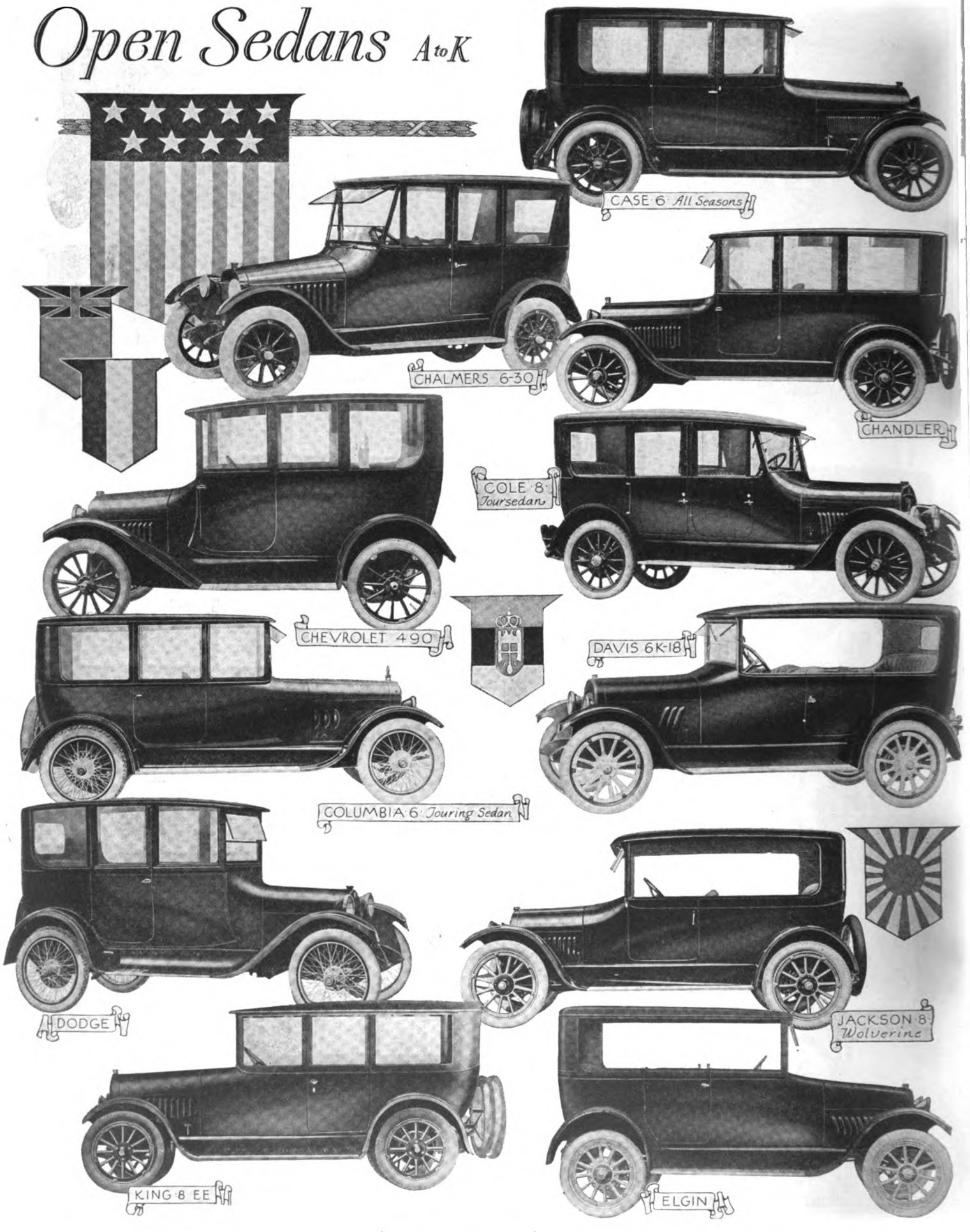
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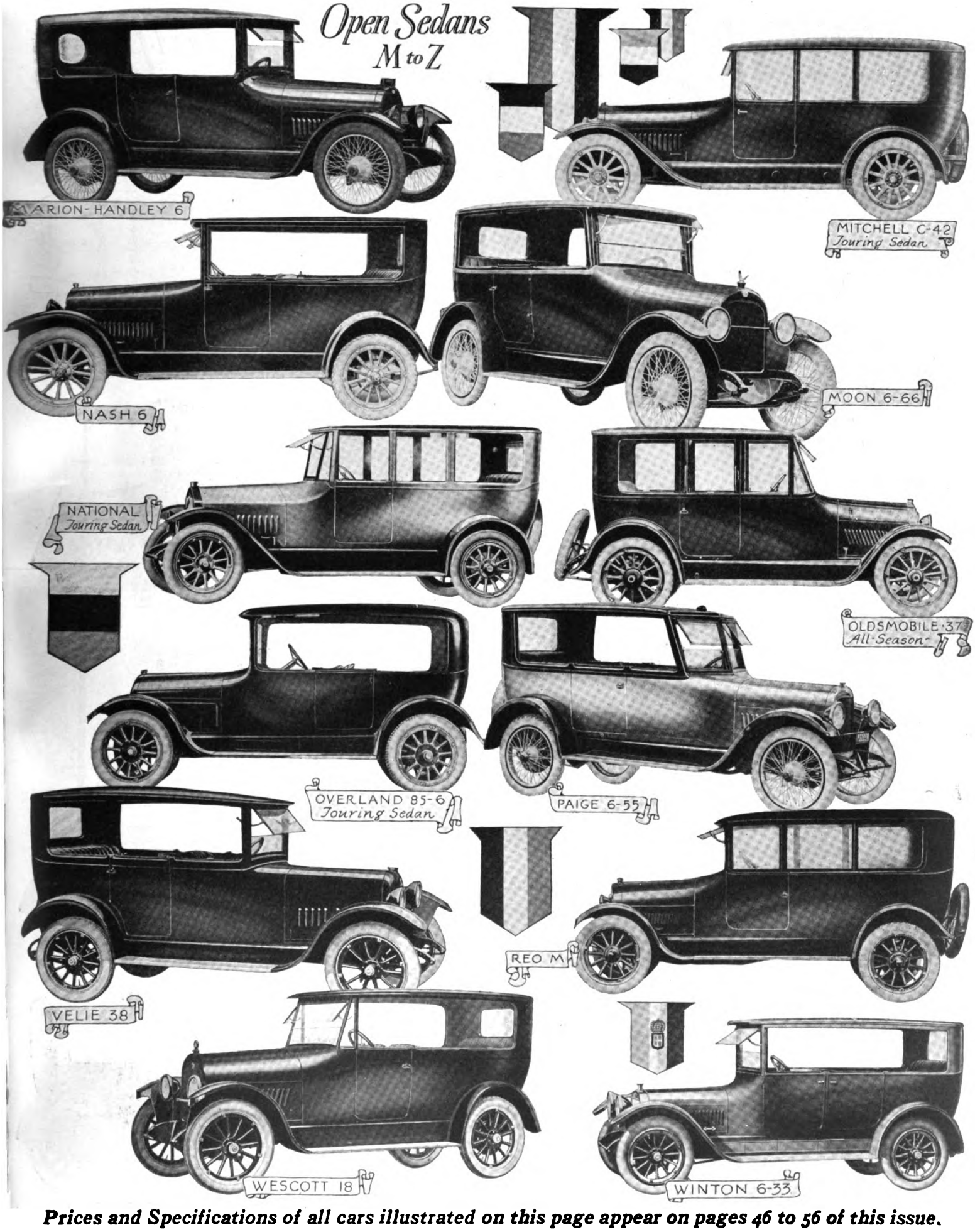
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Open Sedans A to K



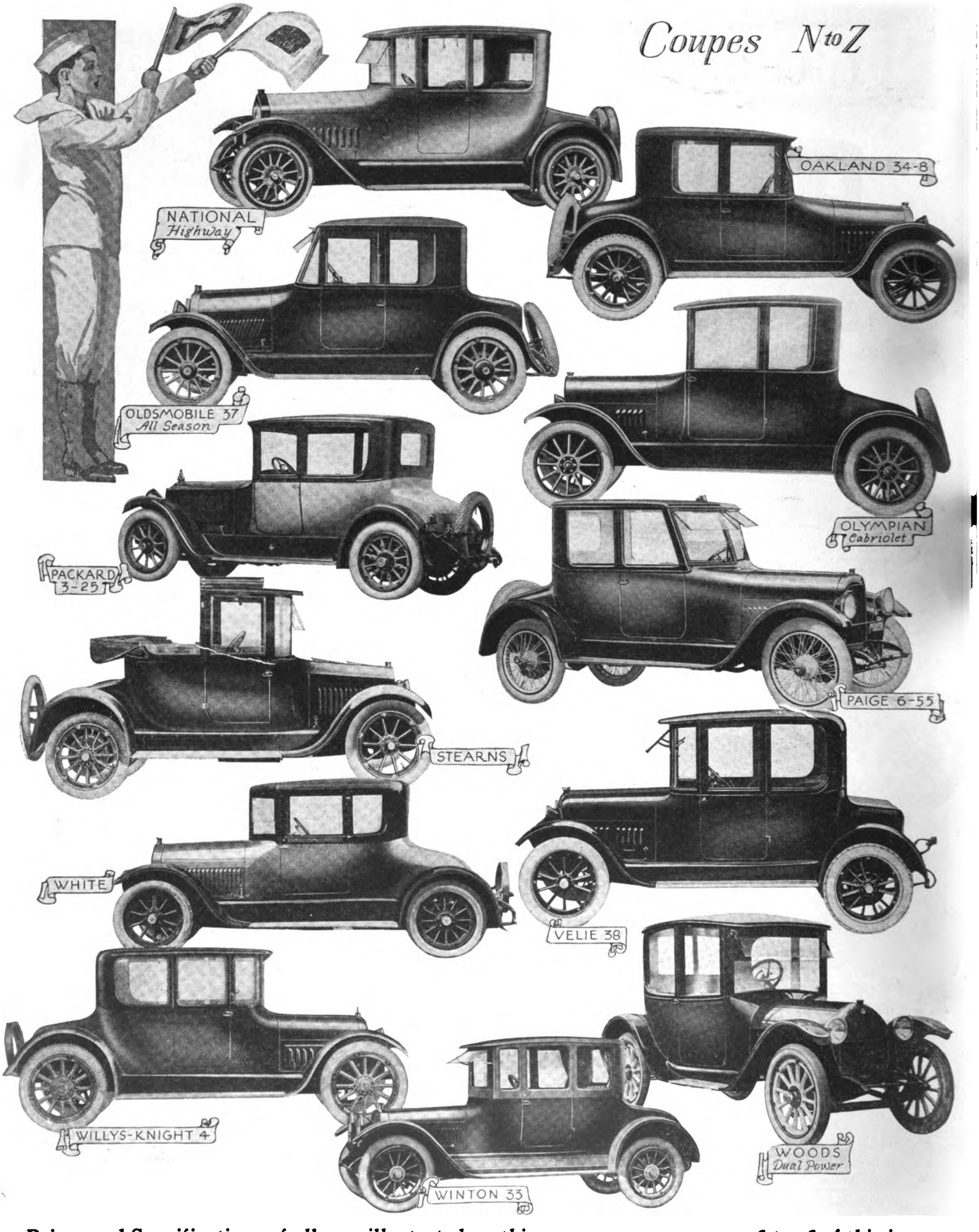
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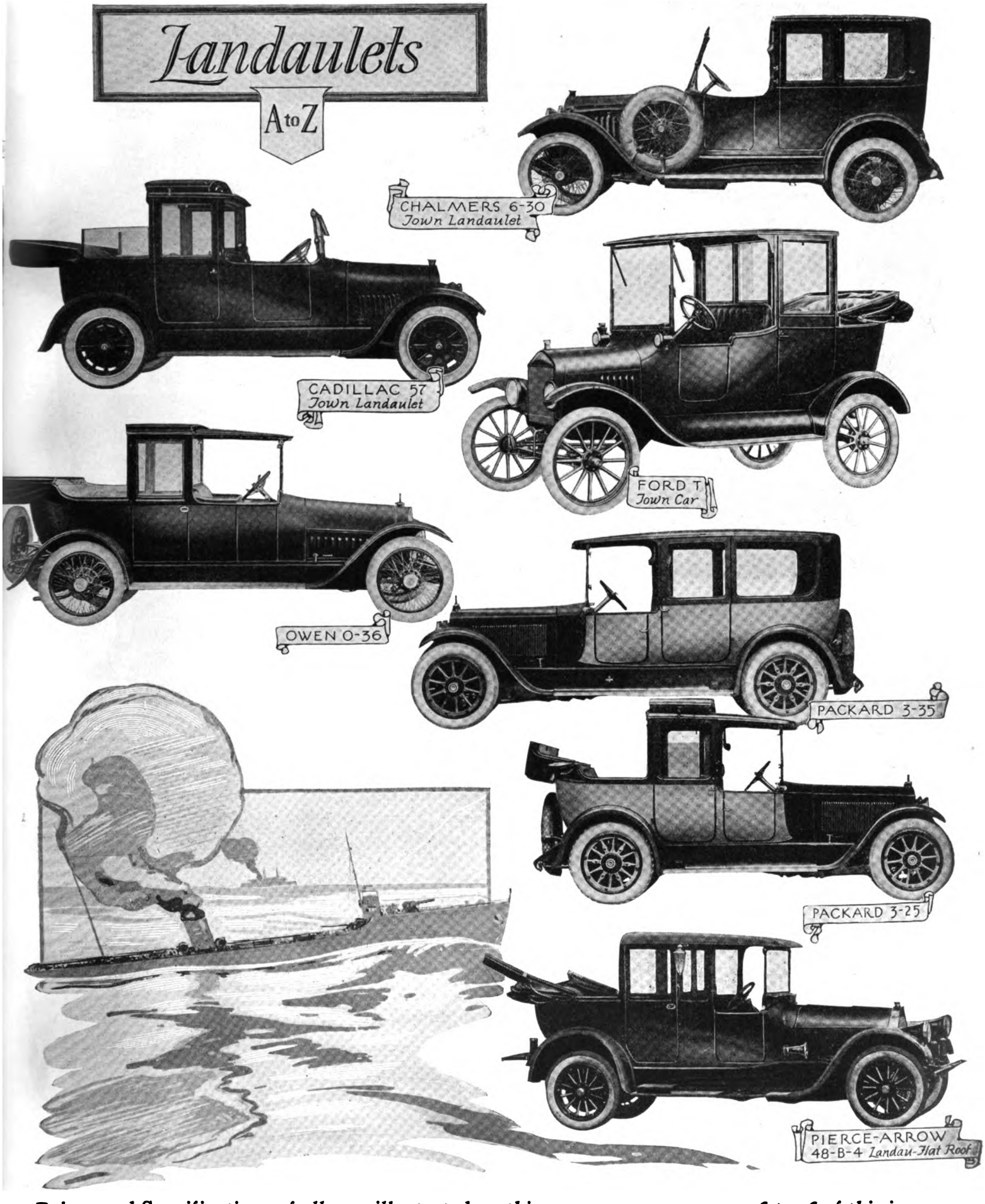
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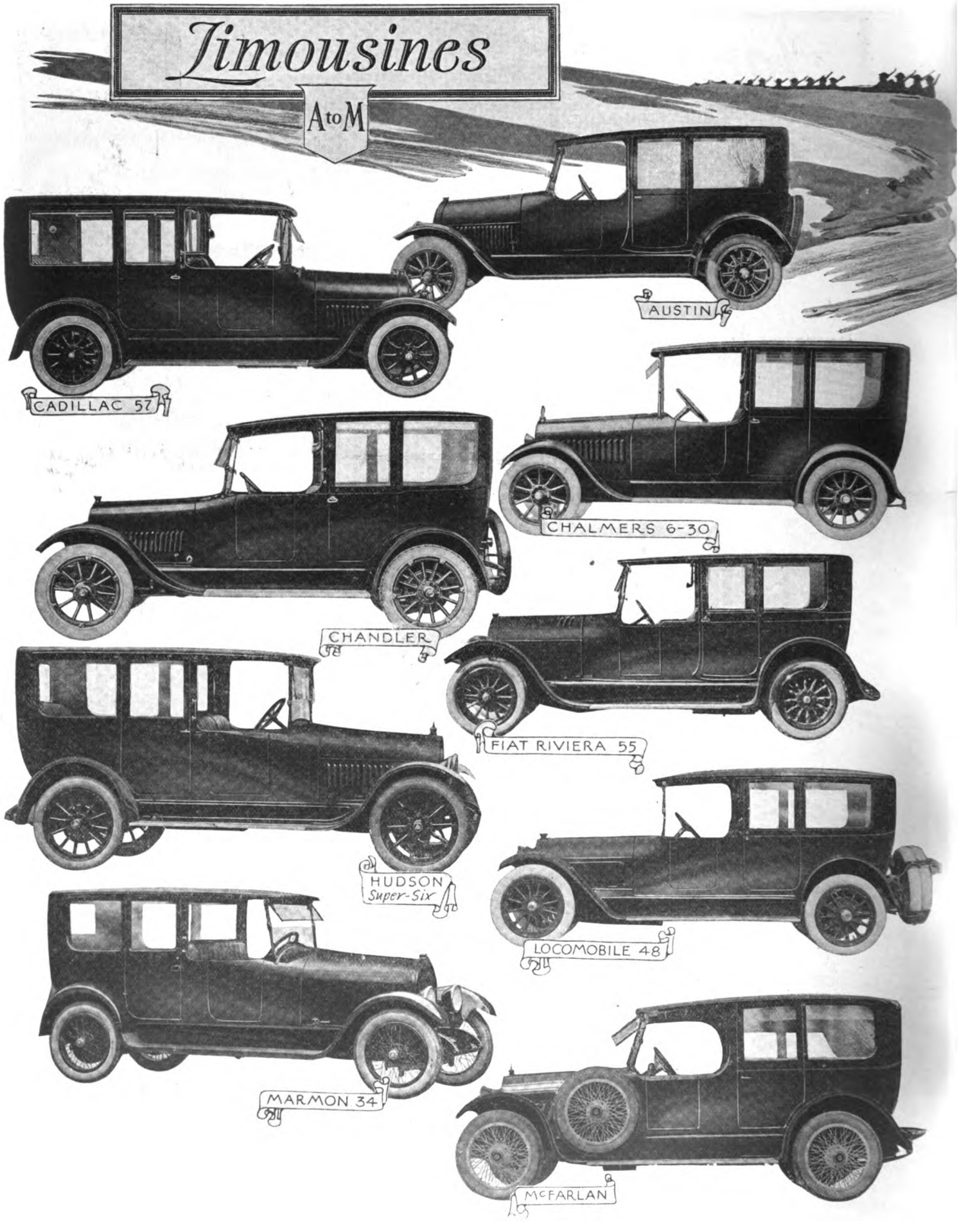
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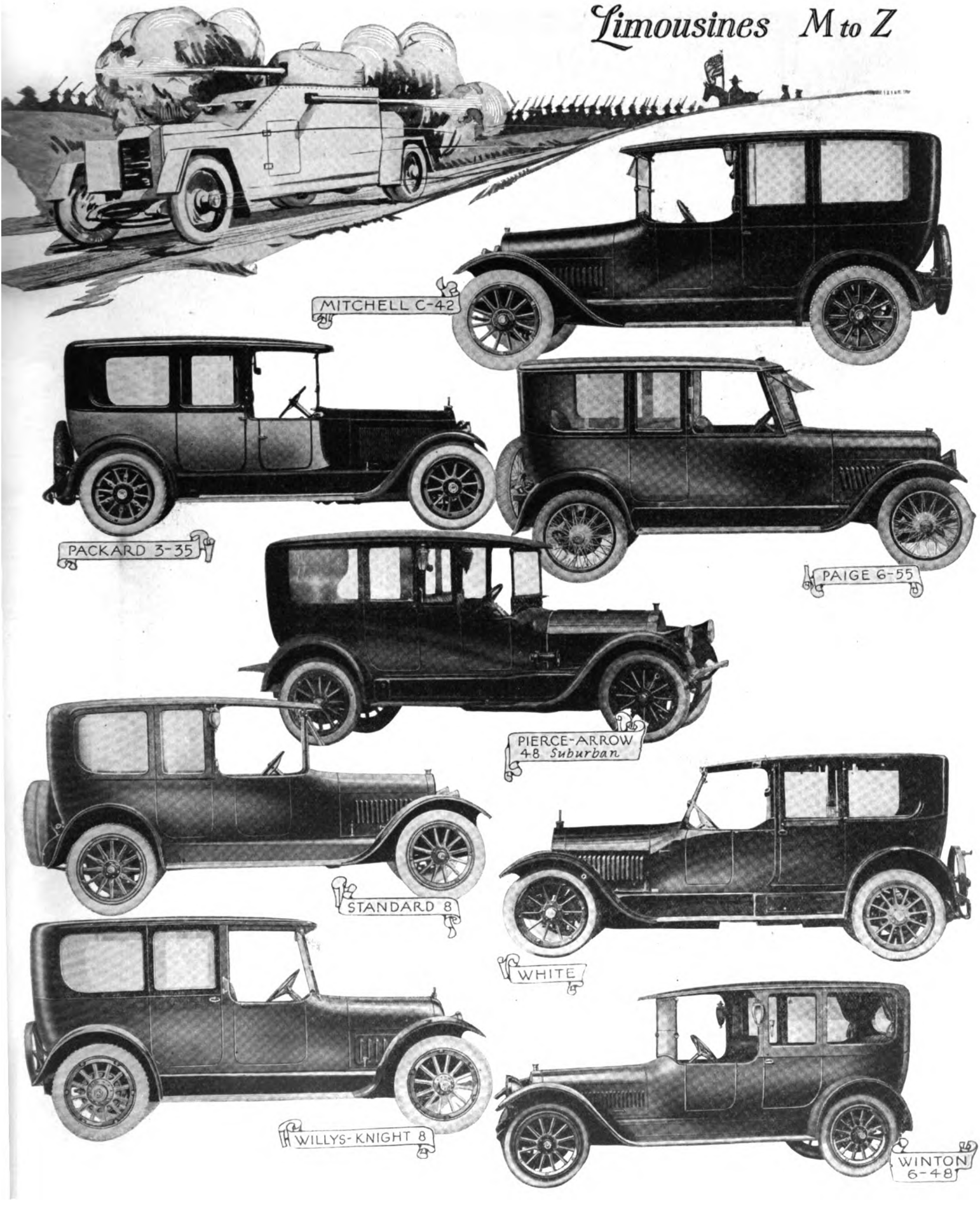
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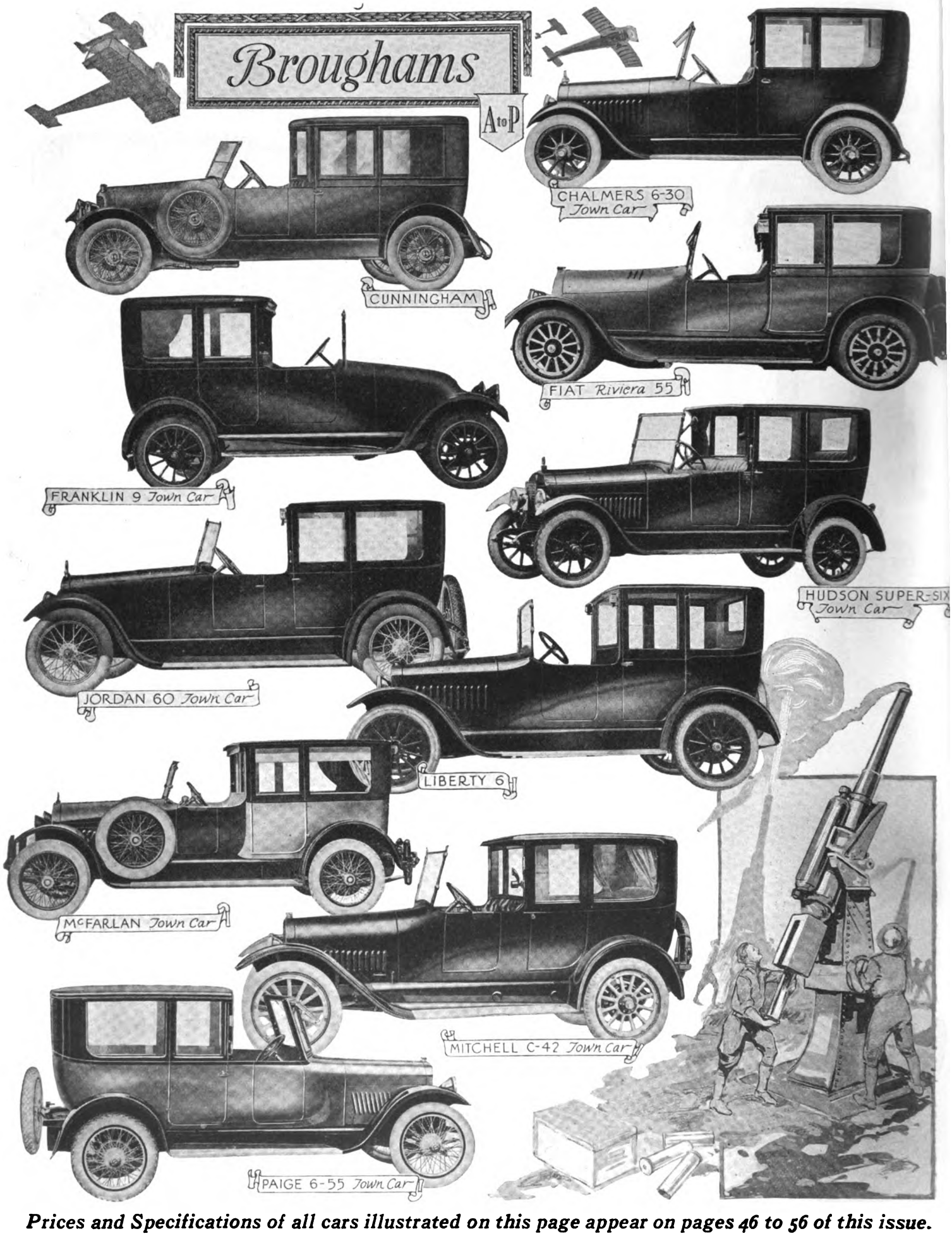
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Limousines M to Z



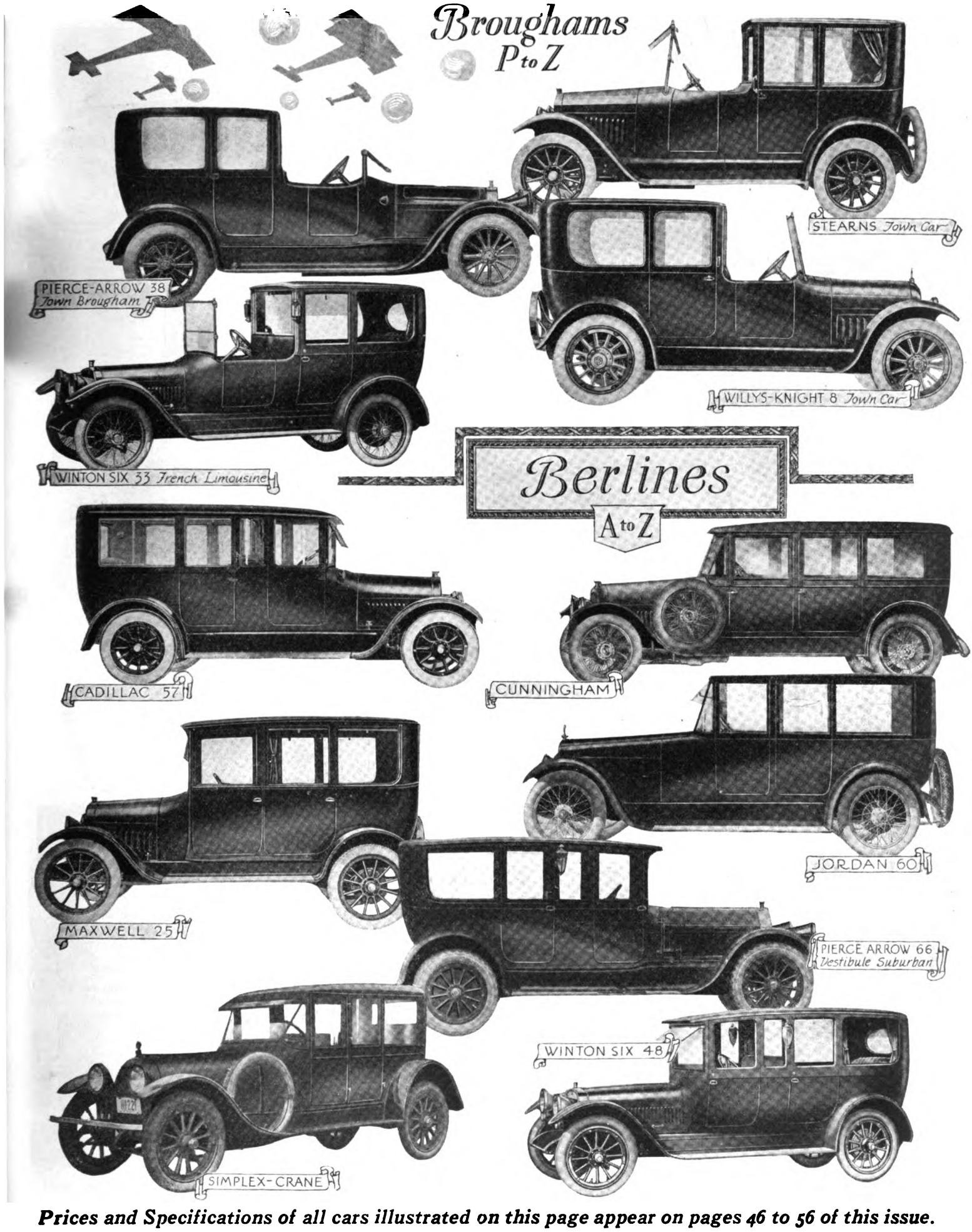
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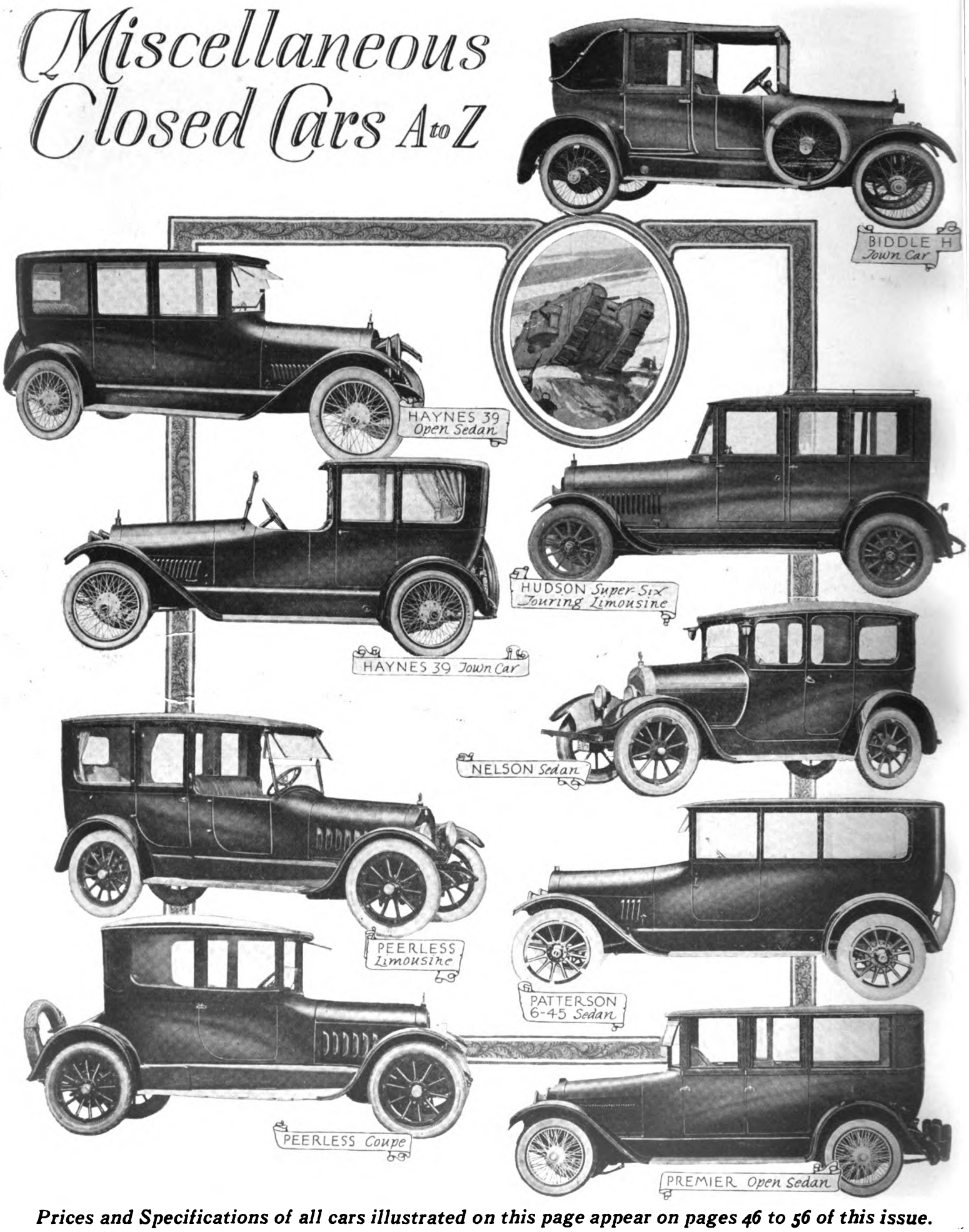
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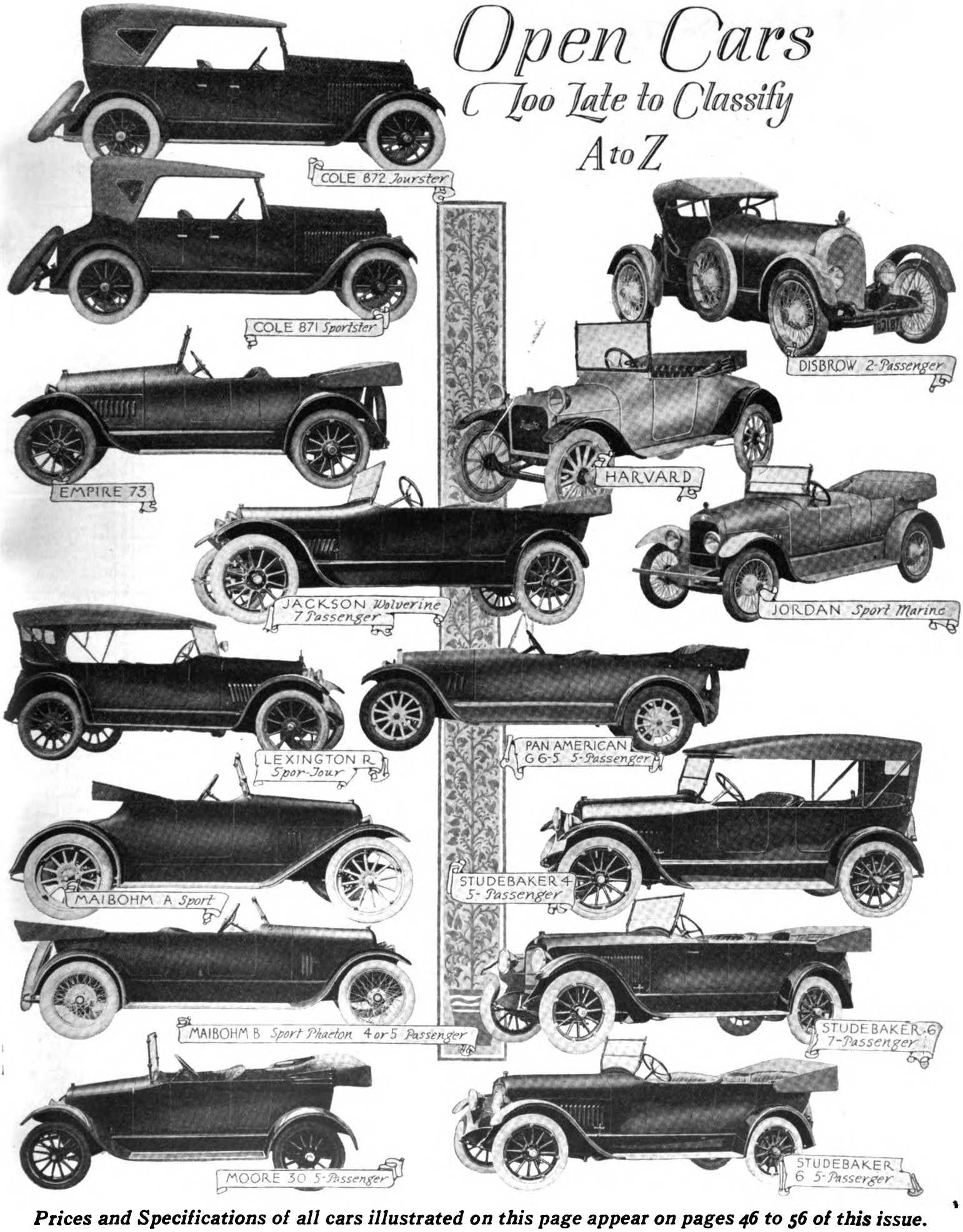
Miscellaneous Closed Cars A to Z



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Open Cars
Too Late to Classify
A to Z



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1918 Passenger Automobiles Listed

MAKE AND MODEL	Wheelbase	No. of Cylinders	Bore and Stroke, Inches	Piston Displacement, Cubic Inches	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION		CARBURETION		IGNITION			ELECTRIC SYS.		CLUTCH	
									System	Type of Pump	Make of Carburetor	Fuel Feed	System	Make	Control	Generator Make	Voltage	Make	Type
Abbott.....6-62	122	6	3½x5½	303	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Stromberg	Vacuum	Single	Remy	Hand	Remy	6	Muncie	Disk
Allen.....41	112	4	3½x5	221	Own	L.	Helical	Ther	Circ-Spl.	Piston	Stromberg	Vacuum	Single	Connecticut	Hand	Auto-Lite	6	Borg & Beck	Plate
American.....B	122	6	3½x5	230	Rutenber	L.	Helical	Cent	Splash-Pres.	Piston	Zenith	Vacuum	Single	G&D	Hand	G&D	6	Borg & Beck	Plate
Andersen.....20	120	6	3½x4½	224	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Zenith	Vacuum	Single	Connecticut	Hand	Westinghouse	6	Borg & Beck	Plate
Appersen	130	6	3½x5	288	Own	L.	Helical	Cent	Splash-Pres.	Gear	Rayfield	Vacuum	Single	Remy	Hand	Bijur	6	Own	Plate
Appersen	130	8	3½x5	332	Own	L.	Helical	Ther	Splash-Pres.	Gear	Johnson	Vacuum	Single	Remy	Hand	Bijur	6	Own	Plate
Arbenz.....25	108	4	3½x5	166	Lycoming	L.	Helical	Ther	Splash	Piston	Carter	Gravity	Single	Dyneto	Hand	Dyneto	6		Cone
Auburn.....6-39	120	6	3½x4½	224	Teet-Hart	L.	Helical	Cent	Splash-Pres.	Piston	Rayfield	Vacuum	Single	Remy	Hand	Remy	6	Borg & Beck	Plate
Auburn.....6-44	131	6	3½x5½	303	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Rayfield	Vacuum	Single	Remy	Hand	Remy	6	Borg & Beck	Plate
Austin	142	12	2½x5	389	Weidely	I	Helical	Cent	Pressure	Gear	Stromberg	Vacuum	Single	Delco	Hand	Delco	6	Muncie	Disk
Biddle.....H	121	4	3½x5½	226	Buda	L.	Helical	Ther	Circ-Spl.	Gear	Zenith	Vacuum	Single	Eisemann	Hand	G&D	6	Own	Plate
Bour-Davis.....18A	118	4	3½x5	220	Continent.	I	Helical	Cent	Circ-Spl.	Gear	Miller	Vacuum	Single	Westinghouse	Hand	Westinghouse	6	Borg & Beck	Plate
Bour-Davis.....18B	118	6	3½x5½	303	Continent.	L.	Helical	Cent	Circ-Spl.	Piston	Stromberg	Vacuum	Single	Westinghouse	Hand	Westinghouse	6	Borg & Beck	Plate
Brewster.....1	125	4	4 x5½	276	Own	K	Chain	Cent	Pressure	Gear	Zenith	Vacuum	Single	Bosch	Hand	U-S-L	12	Own	Cone
Briscoe.....4-24	104	4	3 1/16x5½	163	Own	L.	Helical	Ther	Circ-Spl.	Piston	Dave-Buick	Gravity	Single	Connecticut	Hand	Auto-Lite	6	Own	Rev-C
Buick.....E-4-34	106	4	3½x4½	170	Own	I	Helical	Cent	Circ-Spl.	Gear	Marvel	Vacuum	Single	Delco	H&A	Delco	6	Own	Cone
Buick.....E-4-35	106	4	3½x4½	170	Own	I	Helical	Cent	Circ-Spl.	Gear	Marvel	Vacuum	Single	Delco	H&A	Delco	6	Own	Cone
Buick.....E-6-44	118	6	3½x4½	242	Own	I	Helical	Cent	Circ-Spl.	Gear	Marvel	Vacuum	Single	Delco	H&A	Delco	6	Own	Disk
Buick.....E-6-45 & 46	118	6	3½x4½	242	Own	I	Helical	Cent	Circ-Spl.	Gear	Marvel	Vacuum	Single	Delco	H&A	Delco	6	Own	Disk
Buick.....E-6-49 & 50	124	6	3½x4½	242	Own	I	Helical	Cent	Circ-Spl.	Gear	Marvel	Vacuum	Single	Delco	H&A	Delco	6	Own	Disk
Cadillac.....57	125 / 132	8	3½x5½	314	Own	L.	Chain	Cent	Pressure	Gear	Own	Pressure	Single	Delco	H&A	Delco	6	Own	Disk
Campbell	110	4	3½x4	189	Own	L.	Sp-G	Ther	Circ-Spl.	Gear	American	Vacuum	Single	At Kent	Hand	Auto-Lite	6	Muncie	Disk
Case.....U	125	6	3½x5½	303	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Rayfield	Vacuum	Single	Westinghouse	Hand	Westinghouse	6	Borg & Beck	Plate
Chalmers	117 / 122	6	3½x4½	224	Own	L.	Chain	Ther	Splash-Pres.	Gear	Stromberg	Vacuum	Single	Remy	Hand	Westinghouse	6	Own	Disk
Chandler.....25	123	6	3½x5	289	Own	L.	Chain	Cent	Splash-Pres.	Piston	Rayfield	Vacuum	Single	Bosch	Hand	Westinghouse	6	Borg & Beck	Plate
Chevrolet.....490	102	4	3 1/16x4	171	Own	I	Helical	Cent	Splash-Pres.	Gear	Zenith	Gravity	Single	Remy	Hand	Auto-Lite	6	Own	Cone
Chevrolet	108	4	3 1/16x5½	224	Own	I	Helical	Cent	Splash-Pres.	Gear	Zenith	Vacuum	Single	Remy	Hand	Auto-Lite	6	Own	Cone
Chevrolet.....D-4 & D-5	120	8	3½x4	286	Own	I	Helical	Cent	Splash-Pres.	Gear	Zenith	Vacuum	Single	Remy	Hand	Auto-Lite	6	Own	Cone
Cole.....870	127	8	3½x4½	346	Northway	L.	Helical	Gear	Pressure	Gear	Stromberg	Vacuum	Single	Delco	H&A	Delco	6	Northway	Cone
Columbia.....C&D	115	6	3½x4½	224	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Stromberg	Vacuum	Single	At Kent	Hand	Rob-Myers	9	Borg & Beck	Plate
Comet.....C-50	125	6	3½x5	289	Lewis	L.	Helical	Cent	Splash-Pres.	Piston	Miller	Vacuum	Single	Delco	H&A	Dyneto	6	Mechanics	Disk
Commonwealth.....4-40	112	4	3½x5	192	Lycoming	L.	Helical	Ther	Circ-Spl.	Piston	Carter	Vacuum	Single	At Kent	Hand	Dyneto	6	Mechanics	Disk
Crawford.....6-40	122½	6	3½x5½	303	Continent.	L.	Helical	Cent	Circ-Spl.	Piston	Stromberg	Vacuum	Double	Bosch	Hand	Westinghouse	6	Own	Plate
Crow-Elkhart.....CE-36	114	4	3½x5	192	Own	I	Helical	Ther	Circ-Spl.	Gear	Zenith	Vacuum	Single	Connecticut	Hand	Dyneto	6	Borg & Beck	Plate
Cunningham	132 / 142	8	3½x5	442	Own	L.	Helical	Cent	Pressure	Gear	Stromberg	Vacuum	Single	Delco	H&A	Westinghouse	6		Disk
Daniels.....B	127	8	3½x5	332	Hersh-Sp	L.	Helical	Cent	Pressure	Gear	Zenith	Vacuum	Single	Westinghouse	Hand	Westinghouse	6	Brown-Lipe	Disk
Davis.....H, I & K	119	6	3½x4½	224	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Stromberg	Vacuum	Single	Delco	Hand	Delco	6	T.W.Warner	Cone
Davis.....J & J1	125	6	3½x5½	303	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Stromberg	Vacuum	Single	Delco	H&A	Delco	6	T.W.Warner	Cone
Disbrow.....A	116	4	5 1/16x5½	446	Wisconsin	T.	Sp-G	Cent	Pressure	Gear	Miller	Pressure	Single	K-W	Hand	Leece-N	12	Warner	Disk
Dispatch.....G	120	4	3½x5	221	Wisconsin	L.	Helical	Ther	Pressure	Gear	Rayfield	Vacuum	Single	Delco	Hand	U-S-L	12	Own	
Dodge	114	4	3½x4½	212	Own	L.	Helical	Cent	Circ-Spl.	Gear	Stewart	Vacuum	Single	Delco	H&A	North-East	12	Own	Disk
Derris.....I-C	130	6	4 x5	377	Own	I	Helical	Cent	Pressure	Gear	Stromberg	Vacuum	Single	Bosch	Hand	Westinghouse	6	Brown-Lipe	Disk
Dort.....11	105½	4	3½x5	192	Lycoming	L.	Helical	Ther	Circ-Spl.	Piston	Carter	Gravity	Single	Connecticut	Hand	Westinghouse	6	Own	Cone
Elcar	116	4	3½x5	192	Lycoming	L.	Helical	Ther	Circ-Spl.	Piston	Carter	Vacuum	Single	At Kent	Hand	Dyneto	6	Mechanics	Disk
Elcar	116	6	3½x4½	224	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Stromberg	Vacuum	Single	At Kent	Hand	Dyneto	6	Borg & Beck	Plate
Elgin.....A	117	6	3½x4½	196	Falls	I	Helical	Ther	Circ-Spl.	Piston	Stromberg	Vacuum	Single	Wagner	Hand	Wagner	6	Borg & Beck	Plate
Empire.....50-51	115	4	3½x5	236	Teet-Hart	T.	Helical	Cent	Circ-Spl.	Piston	Stromberg	Vacuum	Single	Connecticut	Hand	Auto-Lite	6	Borg & Beck	Plate
Empire.....70-A	120	6	3½x4½	224	Continent.	L.	Helical	Cent	Splash-Pres.	Piston	Stromberg	Vacuum	Single	Connecticut	Hand	Auto-Lite	6	Borg & Beck	Plate

ABBREVIATIONS

2-pt—*Two Point*
¾ Ell—¾ *Elliptic*
¾ *Float*—¾ *Floating*
¾ Plat—¾ *Platform*
Amid—*Amidships*
Atmtc—*Automatic*
B & P—*Ball and Plain*
B & R—*Ball and Roller*
B R & P—*Ball, Roller and Plain*
C & C—*Cup and Cone*
Cant—*Cantilever*
Cent—*Centrifugal*
Circ-Spl—*Circulating Splash*
Dual-D—*Dual Double*
Ell—*Elliptic*
F—*F-Head*
Float—*Floating*
Fric—*Friction*
Gear—*Gear Pump*
H—*Horizontal*
H & A—*Hand and Automatic*
I—*I-Head*
Imp—*Impeller*
K—*Knight type*
L—*L-Head*
Mag—*Magnetic*
Non-Spl—*Non-Circulating Splash*
Opt—*Optional*
Plan—*Planetary*
Plat—*Platform*
Rad-Rd—*Radius Rods*
Rev-C—*Reversed Cone*
Roll—*Roller*
S-A—*Semi-Automatic*
S-E—*Semi-Elliptic*
Semi-F—*Semi-Floating*
Sp-B—*Spiral Bevel*
Sp-G—*Spiral Gear*

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with Their Technical Specifications

TRANSMISSION							Gear Ratio on Direct	RUNNING GEAR				Make of Steering Gear	Make of Speedometer	Crankshaft Bearings and Number	BEARINGS			MAKE AND MODEL
GEARSET			Final Drive	Torque Taken By	Make of Rear Axle	Rear Axle Type		TIRES		Wheels	Rear Spr'gs				Gearset	Rear Axle	Front Wheel	
Make	Location	Forward Speeds						Front	Rear									
Muncie	Unit M...	3	Sp.B...	Springs...	Salisbury..	¾ Float..	4.30–1	34x4	34x4	Wood†..	S-E...	Gemmer....	Stewart....	Plain 3...	Ball..	B&R..	Roll...	Abbett....6–62
Own	Unit M...	3	Sp.B...	Springs...	Adams....	Float...	4.25–1	32x3½	32x3½	Wood...	S-E...	Ditwiler....	Stewart....	Plain 2...	B&R..	Ball...	Roll...	Allen....41
Mechanics	Unit M...	3	Sp.B...	Springs...	Salisbury..	¾ Float..	4.42–1	32x4	32x4	Wood...	S-E...	Gemmer....	Van Sicklen..	Plain 3...	B&P..	B&R..	Ball...	American....B
Durston	Unit M...	3	Sp.B...	Springs...	Columbus.	¾ Float..	4.58–1	33x4	33x4	Wood†..	S-E...	C. A. S....	Stewart....	Plain 3...	Ball...	Roll...	Ball...	Andersen....20
Own	Amid....	3	Sp.B...	Springs...	Own.....	Semi-F..	4.25–1	34x4	35x4½	Wood†..	¾-Ell..	Own.....	Van Sicklen..	Plain 4...	Roll...	Roll...	Plain..	Apperson....
Own	Amid....	3	Sp.B...	Springs...	Own.....	Semi-F..	4.25–1	34x4	35x4½	Wood†..	¾-Ell..	Own.....	Van Sicklen..	Plain 3...	Roll...	Roll...	Roll...	Apperson....
.....	Unit M...	3	Bevel..	Springs...	Gemco....	Float...	4.25–1	30x3½	30x3½	Wood...	Cant..	.....	Carter.....	Plain 2...	Ball...	Roll...	Ball...	Arbenz....25
Grant-Lees	Unit M...	3	Sp.B...	Tor-A....	.....	¾ Float..	4.42–1	34x4	34x4	Wood...	S-E...	Jacox.....	Stewart....	Plain 3...	Ball...	Roll...	Ball...	Auburn....6–39
Grant-Lees	Unit M...	3	Sp.B...	Tor-A....	.....	Float...	4.08–1	35x4½	35x4½	Wood...	Cant..	.....	.....	Plain 3...	Ball...	Roll...	Ball...	Auburn....6–44
Muncie	Unit M...	3	Sp.B...	Springs...	Own.....	Float..	*3.75–1 *5.25–1	34x4½	34x4½	Wood†..	Cant..	Lavine.....	Stewart....	Plain 3...	Ball...	B&R..	Roll...	Austin....
Own	Unit M...	4	Sp.B...	Springs...	Own.....	Float...	4.40–1	32x4	32x4	Wire....	S-E...	Gemmer....	Warner.....	Plain 3...	B&R..	Roll...	Roll...	Biddle....H
Detroit	Unit M...	3	Sp.B...	Springs...	Salisbury..	¾ Float..	4.00–1	32x4	32x4	Wood...	S-E...	Gemmer....	Van Sicklen..	Plain 3...	Ball...	Roll...	Ball...	Bour-Davis....18A
Detroit	Unit M...	3	Sp.B...	Springs...	Salisbury..	¾ Float..	4.07–1	33x4½	33x4½	Wood...	S-E...	Gemmer....	Van Sicklen..	Plain 3...	Ball...	Roll...	Ball...	Bour-Davis....18B
Own	Unit T...	3	Sp.B...	Tor-T....	Own.....	Float...	4.50–1	34x4½	34x4½	Wood...	Cant..	Own.....	Stewart....	Plain 3...	Ball...	Roll...	Roll...	Brewster....1
Own	Unit X...	3	Bevel..	Tor-A....	Own.....	Semi-F..	4.25–1	30x3½	30x3½	Wood†..	Ell....	Own.....	Stewart....	Plain 2...	BR&P	B&R..	Ball...	Briscoe....4–24
Own	Amid....	3	Bevel..	Springs...	West-M...	¾ Float..	4.08–1	31x4	31x4	Wood...	S-E...	Jacox.....	Stewart....	Plain 3...	Ball...	Roll...	Ball...	Buick....E–4–34
Own	Amid....	3	Bevel..	Springs...	West-M...	¾ Float..	4.08–1	31x4	31x4	Wood...	S-E...	Jacox.....	Stewart....	Plain 3...	Ball...	Roll...	Ball...	Buick....E–4–35
Own	Amid....	3	Sp.B...	Tor-T....	West-M...	Float...	4.08–1	34x4	34x4	Wood...	Cant..	Jacox.....	Stewart....	Plain 4...	Ball...	Roll...	Roll...	Buick....E–6–44
Own	Amid....	3	Sp.B...	Tor-T....	West-M...	Float...	4.08–1	34x4	34x4	Wood...	Cant..	Jacox.....	Stewart....	Plain 4 ..	Ball...	Roll...	Roll...	Buick....E–6–45 & 46
Own	Amid....	3	Sp.B...	Tor-T....	West-M...	Float...	4.61–1	34x4½	34x4½	Wood...	Cant..	Jacox.....	Stewart....	Plain 4...	Ball...	Roll...	Roll...	Buick....E–6–49 & 50
Own	Unit M...	3	Sp.B...	Tor-T....	Timken...	Float...	4.43–1 5.07–1	35x5 34x4½	35x5 34x4½	Wood...	Plat...	Own.....	.....	Plain 3...	BR&P	Roll...	Roll...	Cadillac....57
Muncie	Unit M...	3	Bevel..	Springs...	Salisbury..	Float...	4.25–1	30x3½	30x3½	Wood...	S-E...	Own.....	Van Sicklen..	Plain 3...	Ball...	B&R .	Ball...	Campbell....
Grant-Lees	Unit M...	3	Sp.B...	Springs...	Columbia..	¾ Float..	4.45–1	35x4½	35x4½	Wood†..	S-E...	Jacox.....	Stewart....	Plain 3...	Ball...	.....	Roll...	Case....U
Own	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4 75–1 5.09–1	32x4 34x4	32x4 34x4	Wood...	S-E...	Own.....	Stewart....	Plain 3...	Roll..	Roll...	Roll..	Chalmers....
Own	Unit M...	3	Sp.B...	Tor-T....	Own.....	Float...	4.40–1	34x4	34x4	Wood...	S-E...	Gemmer.... C. A. S.	Stewart....	Plain 3...	Ball...	Ball...	Roll...	Chandler....25
Own	Amid....	3	Bevel..	Springs...	Own.....	¾ Float..	3.65–1	30x3½	30x3½	Wood...	Cant..	T.W.Warner.	Stewart....	Plain 3...	B&P..	Roll...	C&C..	Chevrolet....490
Own	Amid....	3	Bevel..	Springs...	Own.....	¾ Float..	4.25–1	33x4	33x4	Wood...	Cant..	T.W.Warner	Stewart....	Plain 3...	B&P..	Roll...	C&C..	Chevrolet....
Own	Amid....	3	Bevel..	Tor-T....	Own.....	¾ Float..	4.25–1	34x4	34x4	Wood...	Cant..	T.W.Warner.	Stewart....	Plain 3...	B&P..	Roll...	C&C..	Chevrolet....D–4 & D–5
Northway	Unit M...	3	Sp.B ..	Springs...	Columbia..	Float...	4.45–1	35x4½	35x4½	Wood†..	S-E...	Warner.....	Warner.....	Plain 3...	Ball...	Roll...	Roll...	Cole....870
T.W.Warner	Unit M...	3	Sp.B...	Tor-T....	Timken...	¾ Float..	4.75–1	32x4	32x4	Opt.....	Cant..	T.W.Warner	Stewart....	Plain 3...	Ball...	Roll...	Roll...	Columbia....C&D
Mechanics	Unit M...	3	Sp.B...	Tor-T....	W-Weiss...	¾ Float..	4.50–1	33x4	33x4	Opt.....	Cant..	C. A. S....	Stewart....	Plain 3...	Ball...	Roll...	Ball...	Comet....C–50
Mechanics	Unit M...	3	Sp.B...	Springs...	Peru.....	Float...	4.00–1	32x3½	32x3½	Opt.....	¾ Ell..	Ditwiler....	Van Sicklen..	Plain 2...	Ball...	B&R..	Ball...	Commonwealth....4–40
Own	Unit M...	3	Sp.B...	Springs...	Timken...	¾ Float..	4.08–1	32x4	32x4	Wood...	S-E...	Gemmer....	Stewart....	Plain 3...	Roll...	Roll...	Roll...	Crawford....6–40
Own	Unit M...	3	Bevel..	Springs...	Peru.....	Float...	4.25–1	32x3½	32x3½	Opt.....	S-E...	Jacox.....	Stewart....	Plain 3...	Ball...	Roll...	Roll...	Crow-Elkhart....CE–36
.....	Unit M...	3	Sp.B...	Tor-T....	Timken...	Float...	3.08–1 4.08–1	35x5 37x5	35x5 37x5	Opt.....	¾ Ell..	Gemmer....	Warner.....	Plain 3...	BR&P	Roll. .	Roll...	Cunningham....
Brown-Lipe	Unit M...	3	Sp.B...	Tor-T....	Timken...	¾ Float..	4.45–1	34x4½	34x4½	Wood...	S-E...	Gemmer....	Warner.....	Plain 3...	B&R..	Roll...	Roll...	Daniels....B
T.W.Warner	Unit M...	3	Sp.B...	Springs...	Columbia .	¾Float..	4.58–1	34x4	34x4	Wood...	S-E...	T.W.Warner.	Stewart....	Plain 3...	B&P..	Roll...	Ball...	Davis....H, I & K
T.W.Warner	Unit M...	3	Sp.B...	Springs...	Columbia..	Float...	4.42–1	34x4½	34x4½	Wood...	S-E...	T.W.Warner.	Stewart....	Plain 3...	B&P..	Roll...	Roll...	Davis....J & JI
Warner	Unit M...	3	Bevel..	Springs...	American..	Float...	2.91–1	33x4½	33x4½	Wire....	S-E...	Warner.....	Stewart....	Plain 3...	Roll...	Roll...	Roll...	Disbrow....A
Own	Amid....	4	Chain..	Springs...	Own.....	Dead...	4.12–1	36x3½	36x3½	Wood...	Ell....	Foster.....	Corb.-Brown.	Plain.....	Ball...	Ball...	Ball...	Dispatch....G
Own	Unit M...	3	Sp.B...	Tor-T....	Own.....	Float...	4.17–1 3.62–1	32x3½	32x3½	Wood†..	¾ Ell..	Own.....	Johns-Man..	Plain 3...	R&P..	Roll...	Roll...	Dodge....
Own	Unit M...	3	Sp.B...	Tor-T....	Timken...	Float...	3.50–1	36x4½	36x4½	Wood...	Plat...	Warner.....	Warner.....	Plain 7...	Roll...	Roll...	Roll...	Derris....I–C
Mechanics	Unit M...	3	Bevel..	Tor-T....	W-Weiss...	¾ Float..	4.00–1	30x3½	30x3½	Opt.....	Cant..	Jacox.....	Stewart....	Plain 2...	B&P..	R&P..	Ball...	Dort....11
Mechanics	Unit M...	3	Sp.B...	Springs...	Salisbury..	Float...	4.50–1	32x3½	32x3½	Wood†..	S-E...	C. A. S....	Stewart....	Plain 2...	Ball...	Roll...	Roll...	Elcar....
Muncie	Unit M...	3	Sp.B...	Springs...	Salisbury..	Float...	4.50–1	33x4	33x4	Wood†..	S-E...	C. A. S....	Stewart....	Plain 3...	Ball...	Roll...	Roll...	Elcar....
Mechanics	Unit M...	3	Sp.B...	Tor-A....	Adams....	¾ Float..	4.45–1	32x4	32x4	Wood...	Cant..	C. A. S....	Van Sicklen..	Plain 3...	B&P..	Ball...	Roll...	Elgin....A
Mechanics	Unit M...	3	Bevel..	Tor-T....	Peru.....	¾ Float..	4.33–1 3.75–1	33x4	33x4	Opt.....	S-E...	C. A. S....	Stewart....	Plain 3...	B&P..	B&R..	Ball...	Empire....50–51
Mechanics	Unit M...	3	Sp.B...	Springs...	Hess.....	Float...	4.58–1	34x4	34x4	Opt.....	S-E...	C. A. S....	Stewart....	Plain 3...	B&P..	B&R..	Ball...	Empire....70–A

Splash-Pres—*Splash Pressure*
Spur—*Spur Gears*
T—*T-Head*
Ther—*Thermo-Syphon*
Tor-A—*Torsion Arm*
Tor-R—*Torsion Rod*
Tor-T—*Torsion Tube*
Tr. S-E—*Transverse Semi-Elliptic*
Unit-M—*Unit with Motor*
Unit-T—*Unit with Torque Tube*
Unit-X—*Unit with Axle*
Vib-Dup—*Vibrating Duplex*
†—*Wire Extra*
*—*Two-Speed Axle*

EQUIPMENT

Allis-Ch—*Allis-Chalmers*
At Kent—*Atwater Kent*
A. W. T.—*American Watch Tool Co.*
Continent—*Continental*
Cut-Hammer—*Cutler-Hammer*
G.B.&S.—*Golden, Belknap & Swartz*
G. & D.—*Gray & Davis*
Gen. Elec.—*General Electric*
Hersh-Sp—*Herschell-Spillman*
Johns-Man—*Johns-Manville*
Leece-N—*Leece-Neville*
Longmare—*Longuemare*
Mass-Ph—*Massnick-Phipps*
Mer & Evans—*Merchant & Evans*
Reichbch—*Reichenbach*
Rob-Myers—*Robbins & Myers*
Shkspere—*Shakespeare*
Teet-Hart—*Teetor-Hartley*
U-S-L—*U. S. Light & Heating Corp.*
W-Weiss—*Walker-Weiss*
Ward-L—*Ward Leonard*
West-M—*Weston-Mott*

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1918 Passenger Automobiles Listed with

MAKE AND MODEL	Wheel-base	No. of Cylinders	Bore and Stroke, Inches	Piston Displacement, Cubic Inches	Make of Engine	Cylinder Shape	Cam-shaft Drive	Water Circulation	LUBRICATION		CARBURETION		IGNITION			ELECTRIC SYS.		CLUTCH	
									System	Type of Pump	Make of Carbureter	Fuel Feed	System	Make	Control	Generator Make	Voltage	Make	Type
Empire.....71	120	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Connecticut..	Hand.	Auto-Lite....	6	Borg & Beck	Plate..
Empire.....73	120	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Connecticut..	Hand.	Auto-Lite....	6	Borg & Beck	Plate..
Fageol.....	140	6	5 x7	825	Hall-Scott	I..	Bevel...	Cent..	Pressure.....	Gear...	Zenith.....	Vacuum..	Dual-D	Splitdorf....	Hand.	Bosch.....	12	Hele-Shaw..	Disk..
Fergus.....	130	6	3½x4¾	236	Own.....	I..	Sp-B....	Cent..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Bosch.....	Hand.	Special.....	6	Own.....	Disk..
Fiat.....E-17	140	4	5½x6¾	584	Own.....	L..	Chain...	Cent..	Splash-Pres..	Gear...	Own.....	Pressure..	2-Pt...	Bosch.....	Hand.	Westinghouse	6	Own.....	Disk..
Ford.....T	100	4	3¾x4	177	Own.....	L..	Sp-G....	Ther..	Splash-Grav.	.....	Holley-Kng.	Gravity..	Single..	Own.....	Hand.	.....	...	Own.....	Disk..
Franklin.....9	115	6	3½x4	199	Own.....	I..	Helical..	Air...	Pressure.....	Gear...	Own.....	Vacuum..	Single..	At Kent.....	Atmtc	Dyneto.....	12	Own.....	Disk..
F.R.P.....45B	140	4	4⅝x6¾	445	Own.....	I..	Helical..	Cent..	Splash-Pres..	Piston..	Stewart....	Pressure..	2-Pt...	Bosch.....	Hand.	Bosch.....	12	Mer. & Ev..	Disk..
Geronimo.....	114	4	3½x5	192	Lycoming..	L..	Helical..	Ther..	Circ-Spl.....	.....	Carter.....	Vacuum..	Single..	Delco.....	Hand.	Dyneto.....	6	Lycoming..	Disk..
Geronimo.....A-45	122	6	3½x5	230	Rutenber..	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Delco.....	Hand.	Dyneto.....	6	Borg & Beck	Plate..
Ghent.....6-60	125	6	3½x5½	303	Continent	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Connecticut..	Hand.	Auto-Lite....	6	Borg & Beck	Plate..
Glide.....6-40	119	6	3⅜x5	230	Rutenber..	L..	Helical..	Cent..	Splash-Pres.	Piston..	Rayfield....	Vacuum..	Single..	Westinghouse	Hand.	Westinghouse	6	Own.....	Disk..
Grant.....G	114	6	3 x4½	180	Own.....	I..	Helical..	Ther..	Circ-Spl.....	Piston..	Stromberg..	Vacuum..	Single..	Remy.....	Atmtc	Wagner.....	6	Durston....	Cone..
Hackett.....A L	112	4	3⅜x4½	188	Own.....	L..	Chain...	Ther..	Splash-Pres..	Piston..	Dave Buick.	Vacuum..	Single..	Connecticut..	Hand.	Dyneto.....	6	.....	Disk..
Hal.....21-A	135	12	2⅞x5	389	Weidely...	I..	Helical..	Cent..	Pressure.....	Gear...	Stromberg..	Vacuum..	Dual...	Remy.....	Hand.	Westinghouse	6	Borg & Beck	Plate..
Harroun.....	106	4	3½x5½	174	Own.....	I..	Helical..	Ther..	Circ-Spl.....	Piston..	Stromberg..	Vacuum..	Single..	At Kent.....	Hand.	Remy.....	6	Own.....	Cone..
Harvard.....4-20	100	4	3x4½	120	Sterling...	I..	Helical..	Ther..	Circ-Spl.....	Gear...	Zenith.....	Gravity..	Single..	At Kent.....	Atmtc	Wagner.....	6	Detroit.....	Cone.. Disk..
Haynes.....38	121	6	3½x5	289	Own.....	L..	Helical..	Cent..	Circ-Spl.....	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	Hand.	Leece-N.....	6	Borg & Beck	Plate..
Haynes.....39	127	6	3½x6	346	Own.....	L..	Helical..	Cent..	Circ-Spl.....	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	Hand.	Leece-N.....	6	Borg & Beck	Plate..
Haynes.....44	127	12	2¾x5	356	Own.....	I..	Chain...	Cent..	Pressure.....	Gear...	Rayfield....	Vacuum..	Single..	Delco.....	H&A..	Leece-N.....	6	Borg & Beck	Plate..
Hollier.....196	116	6	3 x4½	180	Falls.....	I..	Helical..	Ther..	Circ-Spl.....	Gear...	Stewart....	Vacuum..	Single..	Remy.....	Hand.	Splitdorf....	12	Own.....	Cone..
Hollier.....206	116	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Gear...	Stewart....	Vacuum..	Single..	Remy.....	Hand.	Splitdorf....	12	Borg & Beck	Plate..
Hollier.....188	116	8	3 x4½	180	Own.....	L..	Helical..	Ther..	Pressure.....	Gear...	Stewart....	Vacuum..	Single..	At Kent.....	Atmtc	Splitdorf....	12	Own.....	Cone..
Homer-Laughlin.....D	112	8	2½x3¾	117	Own.....	...	Chain...	Ther..	Circ-Spl.....	.....	Zenith.....	.....	Single..	At Kent.....	Atmtc	Disco.....	12	Own.....	.....
Hudson.....	125	6	3½x5	289	Own.....	L..	Helical..	Cent..	Circ-Spl.....	Piston..	Own.....	Vacuum..	Single..	Delco.....	H&A..	Delco.....	6	Own.....	Disk..
Hupmobile.....R	112	4	3½x5½	182	Own.....	L..	Chain...	Ther..	Pressure.....	Gear...	Stromberg..	Vacuum..	Single..	At Kent.....	Hand.	Bijur.....	6	Own.....	Disk..
Inter-State.....T	110	4	3½x5	192	Beaver....	I..	Helical..	Ther..	Circ-Spl.....	Gear...	Schebler....	Gravity..	Single..	Remy.....	Hand.	Remy.....	6	Own.....	Cone..
Jackson.....	118	8	3 x3½	198	Ferro.....	I..	Helical..	Ther..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Remy.....	S-A...	Auto-Lite....	6	Borg & Beck	Plate..
Jones.....26 AB	125	6	3½x5⅛	296	Lewis.....	L..	Helical..	Cent..	Circ-Spl.....	Piston..	Stromberg..	Vacuum..	Single..	Remy.....	Hand.	Auto-Lite....	6	Borg & Beck	Plate..
Jordan.....J-60	127	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	Brown-Lipe.	Disk..
King.....EE	120	8	3 x5	283	Own.....	L..	Chain...	Ther..	Pressure.....	Gear...	Ball.....	Vacuum..	Single..	At Kent.....	Hand.	Bijur.....	6	Borg & Beck	Plate..
Kissel.....	117	6	3½x5	249	Own.....	L..	Helical..	Cent..	Splash-Pres..	Gear...	Stromberg..	Vacuum..	Single..	Remy.....	Hand.	Remy.....	6	T.W.Warner	Cone..
Kissel.....	128	12	2¾x5	259	Weidely...	I..	Helical..	Cent..	Pressure.....	Gear...	Stromberg..	Vacuum..	Single..	Delco.....	H&A..	Delco.....	6	Warner.....	Disk..
Kline.....6-38	120	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Westinghouse	Hand.	Westinghouse	6	Borg & Beck	Plate..
Lexington.....R	122	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Circ-Spl.....	Piston..	Rayfield....	Vacuum..	Single..	Connecticut..	Hand.	Westinghouse	6	Borg & Beck	Plate..
Liberty.....10-B	115	6	3½x4½	224	Continent.	L..	Helical..	Ther..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Delco.....	Hand.	Delco.....	6	Borg & Beck	Plate..
Locomobile.....38	139	6	4½x5	426	Own.....	T..	Helical..	Cent..	Splash-Pres..	Gear...	Ball.....	Pressure..	Dual-D	Berling.....	Hand.	Westinghouse	6	Own.....	Disk..
Locomobile.....48	142	6	4½x5½	525	Own.....	T..	Helical..	Cent..	Splash-Pres..	Gear...	Ball.....	Pressure..	Dual-D	Berling.....	Hand.	Westinghouse	6	Own.....	Disk..
Madison.....	120	6	3⅜x5	230	Rutenber..	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	Hand.	Remy.....	6	Muncie.....	Disk..
Madison.....	124	6	3⅜x5	230	Rutenber..	L..	Helical..	Cent..	Circ-Spl.....	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	Hand.	Remy.....	6	Muncie.....	Disk..
Maibohm.....A	105	4	3¼x4	123	Own.....	L..	Helical..	Ther..	Splash-Pres..	Piston..	Zenith.....	Gravity..	Single..	At Kent.....	Atmtc	Disco.....	12	Mechanics..	Disk..
Maibohm.....B	115	6	3¼x4½	196	Falls.....	I..	Helical..	Ther..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	At Kent.....	Hand.	Wagner.....	6	Borg & Beck	Plate..
Marion-Handley.....A	120	6	3½x5	230	Rutenber..	L..	Helical..	Cent..	Circ-Spl.....	Piston..	Stromberg..	Vacuum..	Single..	At Kent.....	Hand.	Westinghouse	6	.....	Disk..
Marion-Handley.....B	125	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Westinghouse	Hand.	Westinghouse	6	.....	Disk..
Marmon.....34	136	6	3⅞x5⅛	340	Own.....	I..	Helical..	Cent..	Pressure.....	Gear...	Stromberg.	Gravity..	Single..	Bosch.....	Hand.	Bijur.....	6	Own.....	Cone..
Maxwell.....25	109	4	3⅛x4½	170	Own.....	L..	Helical..	Ther..	Splash-Pres..	Piston..	K. D.....	Gravity..	Single..	At Kent.....	Hand.	Simms-Huff..	12	Own.....	Cone..
McFarlan.....X	136	6	4½x6	572	Teet-Hart.	T..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Double.	Eisemann....	Hand.	Westinghouse	6	Borg & Beck	Plate..
Mercer.....	115	4	3¾x6¾	298	Own.....	L..	Chain...	Cent..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Bosch.....	Hand.	U-S-L.....	...	Own.....	Disk..
Mercer.....	132	4	3¾x6¾	298	Own.....	L..	Chain...	Cent..	Pressure.....	Gear...	.....	Vacuum..	Single..	.....	Hand.	.....	...	Own.....	Disk..
Metz.....25	108	4	3⅞x4	189	Own.....	L..	Helical..	Ther..	Circ-Spl.....	Gear...	A.W.T.....	Gravity..	Single..	At Kent.....	Fixed.	Westinghouse	6	Own.....	.....

ABBREVIATIONS

2-pt—*Two Point*
¼ Ell—¼ *Elliptic*
¼ Float—¼ *Floating*
¼ Plat—¼ *Platform*
Amid—*Amidships*
Atmtc—*Automatic*
B & P—*Ball and Plain*
B & R—*Ball and Roller*
B R & P—*Ball, Roller and Plain*
C & C—*Cup and Cone*
Cant—*Cantilever*
Cent—*Centrifugal*
Circ-Spl—*Circulating Splash*
Dual-D—*Dual Double*
Ell—*Elliptic*
F—*F-Head*
Float—*Floating*
Fric—*Friction*
Gear—*Gear Pump*
H—*Horizontal*
H & A—*Hand and Automatic*
I—*I-Head*
Imp—*Impeller*
K—*Knight type*
L—*L-Head*
Mag—*Magnetic*
Non-Spl—*Non-Circulating Splash*
Opt—*Optional*
Plan—*Planetary*
Plat—*Platform*
Rad-Rd—*Radius Rods*
Rev-C—*Reversed Cone*
Roll—*Roller*
S-A—*Semi-Automatic*
S-E—*Semi-Elliptic*
Semi-F—*Semi-Floating*
Sp.B—*Spiral Bevel*
Sp.G—*Spiral Gear*

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Their Technical Specifications—Continued

TRANSMISSION								RUNNING GEAR						BEARINGS			
GEARSET			Final Drive	Torque Taken By	Make of Rear Axle	Rear Axle Type	Gear Ratio on Direct	TIRES		Wheels	Rear Spr'gs	Make of Steering Gear	Make of Speedometer	Crankshaft Bearings and Number	Gearset	Rear Axle	Front Wheel	MAKE AND MODEL
Make	Location	Forward Speeds						Front	Rear									
Mechanics	Unit M	3	Bevel	Tor-T	West-M	½ Float	4.00-1	34x4	34x4	Opt	½ Ell	C. A. S.	Stewart	Plain 3	B&P	B&R	Ball	Empire 71
Mechanics	Unit-M	3	Sp.B	Springs	Hess	Float	4.58-1	34x4	34x4	Opt	S-E	C. A. S.	Stewart	Plain 3	B&P	B&R	Ball	Empire 73
Own	Amid	3	Bevel	Springs	Own	Semi-F	1.50-1	34x4½	34x4½	Wire	S-E	Gemmer	Stewart	Plain 7	Ball	Roll	Roll	Fageol
Own	Amid	3	Sp.B	Tor-T	Own	Semi-F	4.00-1 / 4.75-1	33x4½	33x4½	Opt	Cant	Own		Plain 3	Plain	B&P	Ball	Fergus
Own	Amid	4	Sp.B	Tor-T	Own	Semi-F	2.75-1	35x5	35x5	Wood	S-E	Own	Stewart	Plain 3	Plain	Ball	Ball	Fiat E-17
Own	Plan	2	Bevel	Tor-T / Rad-Rd	Own	Semi-F	3.64-1	30x3	30x3½	Wood	Tr.S-E	Own	None	Plain 3	Plain	Roll	Ball	Ford T
Own	Amid	3	Sp.B	Springs	Own	Semi-F	4.33-1	32x4 / 33x4½	32x4 / 33x4½	Wood	Ell	Own	Stewart	Plain 7	Ball	Ball	Ball	Franklin 9
Own	Amid	4	Bevel	Tor-T	Own	Float	3.00-1	36x4½	36x5	Wire	S-E	Own	Opt	Plain 3	Ball	Ball	Ball	F.R.P 45B
Mechanics	Unit M	3	Bevel	Tor-T	Adams	Float	4.00-1	32x3½	32x3½	Wood	Cant	C. A. S.	Stewart	Plain 2	Plain	Ball	Ball	Gersenine
Dundore	Unit M	3	Sp.B	Springs	W-Weiss	½ Float	4.50-1	32x4	32x4	Wood	S-E	C. A. S.	Stewart	Plain 3	Ball	Roll	Ball	Gersenine A-45
Grant-Lees	Unit M	3	Sp.B	Springs	Standard	½ Float	4.33-1	34x4	34x4	Opt	S-E	Lavine	Stewart	Plain 3	Ball	B&R	Roll	Ghent 6-60
Own	Unit-M	3	Sp.B	Springs	American	½ Float	4.64-1	34x4	34x4	Wood	½ El	Lavine	Stewart	Plain 3	B&P	Ball	Ball	Glide 6-40
Durston	Unit M	3	Bevel	Tor-T	Peru	Float	4.50-1	32x3½	32x3½	Opt	Cant	Jacox	Van Sicklen	Plain 3	B&P	B&R	Roll	Grant G
Grant-Lees	Unit M	3	Bevel	Springs	W-Weiss	Semi-F	4.00-1	32x3½	32x3½	Wood	½ Ell	Jacox	Stewart	Plain 3	Ball	Roll	Ball	Hackett A L
Grant-Lees	Unit M	3	Sp.B	Springs	Timken	Float	4.45-1	34x4½	34x4½	Wood†	S-E	Gemmer	Van Sicklen	Plain 3	B&R	Roll	Roll	Hal 21-A
Mechanics	Unit M	3	Bevel	Tor-T	Own	½ Float	4.00-1	30x3½	30x3½	Wood	Cant	C. A. S.	Stewart	Plain 3	B&P	B&R	Roll	Harroun
Detroit	Unit M	3	Bevel	Springs	Detroit	Semi-F	4.06-1	28x3	28x3	Opt	Cant	Barnes	Stewart	Plain 3	B&P	B&R	Ball	Harvard 4-20
Own	Unit M	3	Sp.B	Springs	Own	½ Float	4.42-1	34x4	34x4	Wood	S-E	Jacox	Stewart	Plain 3	Ball	Ball	Ball	Haynes 38
Own	Unit M	3	Sp.B	Springs	Own	½ Float	4.42-1	35x4½	35x4½	Wood	S-E	Jacox	Stewart	Plain 3	B&P	B&P	Ball	Haynes 39
Own	Unit M	3	Sp.B	Springs	Own	½ Float	4.07-1	34x4½	34x4½	Wire	S-E	Jacox	Warner	Plain 3	Ball	Ball	Ball	Haynes 44
Own	Unit M	2	Sp.B	Tor-T	Own	Float	4.50-1	32x3½	32x3½	Wood	Cant	Own	Stewart	Plain 3	Ball	Ball	Ball	Hollier 196
Own	Unit M	3	Sp.B	Tor-T	Own	Float	4.50-1	32x4	32x4	Wood†	Cant	Own	Stewart	Plain 3	Ball	Ball	Ball	Hollier 206
Own	Unit-M	2	Sp.B	Tor-T	Own	Float	4.50-1	34x4	34x4	Wood	Cant	Own	Stewart	Plain 3	Ball	Ball	Ball	Hollier 188
Friction	Amid	....	Chain	Rad-Rd	Own	Dead	.....	30x3½	30x3½	Wire	Cant	Warner	Stewart	Ball 2	Ball	Ball	Ball	Homer-Laughlin D
Own	Unit M	3	Sp.B	Springs	Timken	½ Float	*4.08-1	34x4	34x4	Wood†	S-E	Gemmer	Stewart	Plain 4	Roll	Roll	Roll	Hudson
Own	Unit M	3	Sp.B	Springs	Own	½ Float	4.91-1	32x4	32x4	Wood	S-E	Jacox	Van Sicklen	Plain 3	B&P	Roll	Ball	Hupmobile R
Durston	Unit X	3	Bevel	Tor-T	Peru	½ Float	4.00-1	33x4	33x4	Opt	½ Ell	T.W.Warner	Stewart	Plain 3	B&R	Roll	Ball	Inter-State T
Covert	Unit M	3	Sp.B	Springs	Salisbury	½ Float	5.27-1	37x4	37x4	Wood	Ell	Foster	Stewart	Plain 3	Roll	Roll	Ball	Jackson
Covert	Unit M	3	Sp.B	Springs	Timken	½ Float	4.45-1	34x4	34x4	Wood	S-E	T.W.Warner	Stewart	Plain 3	Roll	Roll	Roll	Jones 26 AB
Brown-Lipe	Unit M	3	Sp.B	Springs	Timken	Semi-F	4.45-1	35x4½	35x4½	Wood	S-E	Gemmer	Van Sicklen	Plain 3	B&P	Roll	B&R	Jordan J-60
Own	Unit M	3	Sp.B	Tor-A	Columbia	Float	4.58-1	34x4	34x4	Wood	Cant	Jacox	Stewart	Plain 3	BR&P	Roll	Roll	King EE
T.W.Warner	Unit M	3	Sp.B	Springs	Own	Float	4.58-1	34x4	34x4	Wood	½Ell	Jacox	Stewart	Plain 3	R&P	Roll	Roll	Kissel
Warner	Unit M	3	Sp.B	Springs	Own	Float	4.58-1	34x4½	34x4½	Wood	½ Ell	Jacox	Stewart	Plain 3	B&R	Roll	Roll	Kissel
Grant-Lees	Unit M	3	Sp.B	Springs	Hess	Float	4.33-1	34x4	34x4	Wood†	½ Ell	Lavine	Stewart	Plain 3	Ball	Roll	Roll	Kline 6-38
Warner	Unit M	3	Sp.B	Springs	Hess	½Float	5.00-1	34x4	34x4	Wood†	S-E	Warner	Stewart	Plain 3	Ball	Roll	Ball	Lexington R
Detroit	Unit M	3	Sp.B	Springs	Timken	Semi-F	4.75-1	32x4	32x4	Wood	S-E	Warner	Stewart	Plain 3	Ball	Roll	Roll	Liberty 10-B
Own	Amid	4	Sp.B	Tor-T	Own	Float	3.85-1	36½x4½	37x5	Wood	½ Ell	Own	Warner	Plain 7	Ball	Ball	Roll	Locomobile 38
Own	Amid	4	Sp.B	Tor-A	Own	Float	3.85-1	37x5	37x5	Wood	½ Ell	Own	Warner	Plain 7	Ball	Ball	Roll	Locomobile 48
Muncie	Unit M	3	Sp.B	Springs	Salisbury	½ Float	4.42-1	34x4	34x4	Wood	½ Ell	Warner	Stewart	Plain 3	B&P	Ball	Ball	Madison
Muncie	Unit M	3	Sp.B	Springs	Salisbury	½ Float	4.42-1	34x4	34x4	Wood	½ Ell	Warner	Stewart	Plain 3	B&P	Ball	Ball	Madison
Mechanics	Unit M	3	Sp.B	Springs	W-Weiss	Float	4.25-1	30x3½	30x3½	Opt	S-E	Jacox	Stewart	Plain 2	Ball	Roll	Ball	Maibohm A
Mechanics	Unit M	3	Sp.B	Springs	Peru	Float	4.25-1	32x3½	32x3½	Opt	S-E	Jacox	Stewart	Plain 3	Ball	Roll	Ball	Maibohm B
Muncie	Unit M	3	Sp.B	Springs	Salisbury	Float	4.41-1	32x4	34x4	Wood†	S-E	Warner	Stewart	Plain 3	B&P	Roll	Ball	Marion-Handley A
Muncie	Unit M	3	Sp.B	Springs	Salisbury	Float	4.07-1	35x4½	35x4½	Wood†	S-E	Warner	Stewart	Plain 3	Ball	Roll	Ball	Marion-Handley B
Own	Unit T	3	Sp.B	Tor-T	Own	½ Float	3.69-1	32x4½	32x4½	Wire	Brush	Gemmer	Van Sicklen	Plain 4	BR&P	B&R	Roll	Marmon 34
Own	Unit M	3	Bevel	Tor-T	Own	½ Float	3.58-1	30x3½	30x3½	Opt	S-E	Own	Stewart	Plain 2	R&P	Roll	Ball	Maxwell 25
Brown-Lipe	Amid	3	Sp.B	Springs	Timken	Float	3.50-1	35x5	35x5	Opt	S-E	Warner	Warner	Plain 4	Roll	Roll	Roll	McFarlan X
Own	Amid	4	Sp.B	Springs	Own	Float	3.22-1	32x4	32x4	Wire	S-E			Plain 3	Ball	Roll	Roll	Mercer
Own	Amid	4	Sp.B	Springs	Own	Float	3.87-1	32x4½	32x4½	Wire	S-E			Plain 3	Ball	B&R	Roll	Mercer
Friction		7	Chain	Springs	Own			32x3½	32x3½	Opt	Ell	Own	Stewart	Plain 3		Roll	Ball	Metz 25

Splash-Pres—*Splash Pressure*
Spur—*Spur Gears*
T—*T-Head*
Ther—*Thermo-Syphon*
Tor-A—*Torsion Arm*
Tor-R—*Torsion Rod*
Tor-T—*Torsion Tube*
Tr S-E—*Tranverse Semi-Elliptic*
Unit-M—*Unit with Motor*
Unit-T—*Unit with Torque Tube*
Unit-X—*Unit with Axle*
Vib-Dup—*Vibrating Duplex*
†—*Wire Extra*
*—*Also available* 4.45-1, 3.80-1 and 4.90-1

EQUIPMENT

Allis-Ch—*Allis-Chalmers*
At Kent—*Atwater Kent*
A. W. T.—*American Watch Tool Co.*
Continent—*Continental*
Cut-Hammer—*Cutler-Hammer*
G.B.&S.—*Golden, Belknap & Swartz*
G. & D.—*Gray & Davis*
Gen. Elec.—*General Electric*
Hersh-Sp—*Herschell-Spillman*
Johns-Man—*Johns-Manville*
Leece-N—*Leece-Neville*
Longmare—*Longuemare*
Mass-Ph—*Massnick-Phipps*
Mer & Evans—*Merchant & Evans*
Reichbch—*Reichenbach*
Rob-Myers—*Robbins & Myers*
Shkspere—*Shakespeare*
Teet-Hart—*Teetor-Hartley*
U-S-L—*U. S. Light & Heating Corp.*
W-Weiss—*Walker-Weiss*
Ward-L—*Ward Leonard*
West-M—*Weston-Mott*

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1918 Passenger Automobiles Listed with

MAKE AND MODEL	Wheelbase	No. of Cylinders	Bore and Stroke, Inches	Piston Displacement, Cubic Inches	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION		CARBURETION		IGNITION			ELECTRIC SYS.		CLUTCH	
									System	Type of Pump	Make of Carburetor	Fuel Feed	System	Make	Control	Generator Make	Voltage	Make	Type
Mitchell.....D-40	120	6	3½x5	249	Own.....	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Connecticut..	Hand.	Splitdorf....	6	Own.....	Cone...
Mitchell.....C-42	127	6	3½x5	289	Own.....	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Connecticut..	Hand.	Westinghouse	6	Own.....	Cone...
Moline-Knight.....C	118	4	3½x5	221	Own.....	K..	Chain...	Ther..	Pressure.....	Gear...	Schebler....	Vacuum..	Single..	Connecticut..	Hand.	Wagner.....	6	Own.....	Cone...
Moline-Knight.....G	122	4	4 x6	302	Own.....	K..	Chain...	Ther..	Pressure.....	Gear...	Schebler....	Vacuum..	Single..	Connecticut..	Hand.	Wagner.....	6	Own.....	Cone...
Meniter.....	117	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	.....	Stromberg..	Vacuum..	Dual...	Heinse.....	Hand.	Heinse.....	6	Borg & Beck	Plate...
Monroe.....M-3	96	4	3 x4½	120	Sterling...	I..	Helical..	Ther..	Ciro-Spl.....	Piston..	Zenith.....	Vacuum..	Single..	Connecticut..	Hand.	Auto-Lite....	6	Mechanics..	Disk...
Monroe.....M-6	115	4	3½x4½	149	Own.....	I..	Helical..	Ther..	Splash-Pres..	Gear...	Zenith.....	Vacuum..	Single..	Connecticut..	Hand.	Auto-Lite....	6	Mechanics..	Disk...
Moon.....6-36	114	6	2¾x4½	165	Continent.	L..	Helical..	Ther..	Splash-Pres..	Piston..	Tillotson...	Gravity..	Single..	Delco.....	Hand.	Wagner.....	6	Detlaff.....	Disk...
Moon.....6-45	125	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Delco.....	Hand.	Delco.....	6	Borg & Beck	Plate...
Moon.....6-66	125	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Delco.....	Atmtc	Delco.....	6	Borg & Beck	Plate...
Moore.....30-E	106	4	3¾x4½	188	G.B.& S...	L..	Chain...	Ther..	Splash-Pres..	Piston..	Schebler....	Gravity..	Single..	.....	Hand.	Dyneto.....	6	G.B. & S...	Disk...
Moore.....30	108	4	3¾x4½	188	G.B.& S...	L..	Chain...	Ther..	Ciro-Spl.....	Piston..	Schebler....	Vacuum..	Single..	Splitdorf....	Hand.	Dyneto.....	6	G.B. & S...	Disk...
Murray.....	128	8	3½x5	332	Hersh-Sp..	L..	Helical..	Cent..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Splitdorf....	Hand.	Westinghouse	6	Borg & Beck	Plate...
Nash.....681-683	121	6	3½x5	249	Own.....	I..	Helical..	Cent..	Splash-Pres..	Gear...	Marvel.....	Vacuum..	Single..	Delco.....	H&A..	Delco.....	6	Borg & Beck	Plate...
Nash.....671	125	6	3½x4½	267	Own.....	L..	Chain...	Cent..	Splash-Pres..	Gear...	Rayfield....	Vacuum..	Single..	Delco.....	Hand.	Bijur.....	6	Borg & Beck	Plate...
Nash.....684	127	6	3½x5	249	Own.....	I..	Helical..	Cent..	Splash-Pres..	Gear...	Marvel.....	Vacuum..	Single..	Delco.....	H&A..	Delco.....	6	Borg & Beck	Plate...
National.....	128	6	3½x5½	303	Own.....	L..	Helical..	Cent..	Splash-Pres..	Gear...	Rayfield....	Vacuum..	Single..	Splitdorf....	Hand.	Westinghouse	6	Own.....	Cone...
National.....	128	12	2½x4½	370	Own.....	L..	Helical..	Cent..	Pressure.....	Gear...	Rayfield....	Vacuum..	Single..	Delco.....	Hand.	Bijur.....	6	Own.....	Cone...
Nelson.....	104	4	3½x4½	146	Own.....	I..	Helical..	Ther..	Pressure.....	Gear...	Zenith.....	Vacuum.	Single..	Bosch.....	Hand.	U-S-L.....	12	Own.....	Disk...
Oakland.....34B	112	6	2½x4½	177	Northway.	I..	Helical..	Cent..	Splash-Pres..	Gear...	Marvel.....	Vacuum..	Single..	Remy.....	Hand.	Remy.....	6	Northway..	Cone...
Oldsmobile.....37	112	6	2½x4½	177	Northway.	I..	Helical..	Cent..	Pressure.....	Gear...	Johnson....	Vacuum..	Single..	Remy.....	Hand.	Remy.....	6	Northway..	Cone...
Oldsmobile.....45A	120	8	2½x4½	247	Own.....	L..	Helical..	Cent..	Pressure.....	Gear...	Ball.....	Vacuum..	Single..	Delco.....	H&A..	Delco.....	6	Own.....	Cone...
Olympian.....	114	4	3½x4½	149	Own.....	I..	Helical..	Ther..	Pressure.....	Gear...	Stromberg..	Vacuum..	Single..	Remy.....	Hand.	Wagner.....	6	Own.....	Disk...
Overland.....85	112	4	4½x4½	240	Own.....	L..	Helical..	Ther..	Ciro-Spl.....	Gear...	Tillotson...	Vacuum..	Single..	.....	Hand.	Auto-Lite....	6	Auto-Lite...	Cone...
Overland.....90	{104 {106	4	3½x5	178	Own.....	L..	Helical..	Ther..	Ciro-Spl.....	Piston..	Tillotson...	Vacuum..	Single..	.....	Hand.	Auto-Lite....	6	Auto-Lite...	Cone...
Overland.....85	116	6	3½x4½	224	Continent.	L.	Helical..	Cent..	Splash-Pres..	Piston..	Tillotson...	.Vacuum.	.Single.	.....	Hand.	Auto-Lite....	6	Auto-Lite...	Cone..
Owen Magnetic.....W-42	142	6	4 x5½	415	Own.....	I..	Sp-G....	Cent..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Bosch.....	Hand.	Own.....	24	.....	.....
Packard.....3-25 & 3-35	{128 {136	12	3 x5	424	Own.....	L..	Chain...	Cent..	Pressure.....	Gear...	Own.....	Pressure..	Single..	Delco.....	H&A..	Bijur.....	6	Own.....	Plate...
Paige.....6-39	117	6	3½x5	230	Rutenber..	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Gravity..	Single..	Remy.....	Hand.	G&D.....	6	Borg & Beck	Plate...
Paige.....6-55	127	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	Hand.	Remy.....	6	Borg & Beck	Plate...
Pan American.....G-5	120	6	3½x5	230	Rutenber..	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	G&D.....	Hand.	G&D.....	6	Borg & Beck	Plate...
Pan American.....J-7	128	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Bosch.....	Hand.	G&D.....	6	Borg & Beck	Plate...
Paterson.....6-45	120	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Dual...	Delco.....	Hand.	Delco.....	6	Detroit.....	Cone...
Peerless.....56	125	8	3½x5	332	Own.....	L..	Helical..	Cent..	Pressure.....	Gear...	Ball.....	Vacuum..	Single..	At Kent.....	H&A..	Auto-Lite....	6	Brown-Lipe.	Disk...
Pennsy.....	115	4	3¾x4½	199	G.B.& S...	L..	Chain...	Ther..	Pressure.....	Piston..	Carter.....	Vacuum..	Single..	Connecticut..	Hand.	Dyneto.....	6	G.B. & S...	Disk...
Pennsy.....	120	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Gear...	Rayfield....	Vacuum..	Single..	.....	Hand.	Heinse.....	6	Borg & Beck	Plate...
Phianna.....M	.....	4	3¾x6	287	Own.....	L..	Chain...	Cent..	Pressure.....	Gear...	H & N.....	Vacuum..	Single..	Bosch.....	Hand.	Ward-L.....	6	.....	Disk...
Pierce-Arrow.....C-4	134	6	4 x5½	415	Own.....	T..	Helical..	Cent..	Pressure.....	Gear...	Own.....	Pressure..	Double.	Bosch, West.	Hand.	Westinghouse	6	Own.....	Cone...
Pierce-Arrow.....B-4	142	6	4½x5½	525	Own.....	T..	Helical..	Cent..	Pressure.....	Gear...	Own.....	Pressure..	Double.	Bosch, West.	Hand.	Westinghouse	6	Own.....	Cone...
Pierce-Arrow.....A-4	147½	6	5 x7	825	Own.....	T..	Helical..	Cent..	Pressure.....	Gear...	Own.....	Pressure..	Double.	Bosch. West.	Hand.	Westinghouse	6	Own.....	Cone...
Pilot.....6-45	119	6	3½x5	230	Teet-Hart.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Tillotson...	Vacuum..	Single..	Delco.....	Hand.	Delco.....	6	Borg & Beck	Plate...
Premier.....6-C	125½	6	3½x5½	295	Own.....	I..	Helical..	Cent..	Splash-Pres..	Gear...	Johnson....	Vacuum..	Single..	Delco.....	H&A..	Delco.....	6	Borg & Beck	Plate...
Princess.....36-F	108	4	3¾x4½	188	G.B. & S..	L..	Chain...	Ther..	Ciro-Spl.....	Piston..	Schebler....	Vacuum..	Single..	Splitdorf....	Hand.	Disco.....	6	.....	Disk...
Regal.....J	108	4	3½x4½	163	Own.....	L..	Helical..	Ther..	Ciro-Spl.....	Piston..	Carter.....	Vacuum..	Single..	At Kent.....	Hand.	Auto-Lite....	6	Own.....	Cone...
Reo.....R	115	4	4½x4½	240	Own.....	F..	Helical..	Cent..	Ciro-Spl.....	Piston..	Johnson....	Vac.-Gra.	Single..	Remy.....	Hand.	Remy.....	6	Own.....	Disk...
Reo.....M	126	6	3⅞x5½	307	Own.....	F..	Helical..	Cent..	Ciro-Spl.....	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	Hand.	Remy.....	6	Own.....	Disk...
Reamer.....D-4-75	128	4	4 x6	302	Dues'nb'rg	H..	Helical..	Cent..	Splash-Pres..	Gear...	Stromberg..	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	Borg & Beck	Plate...
Reamer.....C-6-54	128	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Stromberg..	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	Borg & Beck	Plate...
Reamer.....D-6-90	138	6	3½x5½	381	Dues'nb'rg	H..	Chain...	Cent..	Splash-Pres..	Gear...	Stromberg..	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	Fuller.....	Disk...
Saxon.....B-5	96	4	2½x4	95	Continent.	L..	Helical..	Ther..	Ciro-Spl.....	Piston..	Schebler....	Gravity..	Single..	At Kent.....	Atmtc	Wagner.....	6	Own.....	Plate...
Saxon.....S-4	112	6	2½x4½	175	Continent.	L..	Helical..	Ther..	Ciro-Spl.....	Piston..	Stromberg..	Gravity..	Single..	Remy.....	Hand.	Wagner.....	6	Own.....	Plate...
Sayers.....	118	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Zenith.....	Vacuum..	Single..	Delco.....	Hand.	Delco.....	6	Borg & Beck	Plate...
Scripps-Booth.....G	110	4	3½x4	171	Mason....	I..	Helical..	Cent..	Splash-Pres..	Gear...	Zenith.....	Vacuum..	Single..	Remy.....	Atmtc	Remy.....	6	Mason.....	Cone...

ABBREVIATIONS

2-pt—*Two Point*
¾ Ell—¾ *Elliptic*
¾ Float—¾ *Floating*
¾ Plat—¾ *Platform*
Amid—*Amidships*
Atmtc—*Automatic*
B & P—*Ball and Plain*
B & R—*Ball and Roller*
B R & P—*Ball, Roller and Plain*
C & C—*Cup and Cone*
Cant—*Cantilever*
Cent—*Centrifugal*
Circ-Spl—*Circulating Splash*
Dual-D—*Dual Double*
Ell—*Elliptic*
F—*F-Head*
Float—*Floating*
Fric—*Friction*
Gear—*Gear Pump*
H—*Horisontal*
H & A—*Hand and Automatic*
I—*I-Head*
Imp—*Impeller*
K—*Knight type*
L—*L-Head*
Mag—*Magnetic*
Non-Spl—*Non-Circulating Splash*
Opt—*Optional*
Plan—*Planetary*
Plat—*Platform*
Rad-Rd—*Radius Rods*
Rev-C—*Reversed Cone*
Roll—*Roller*
S-A—*Semi-Automatic*
S-E—*Semi-Elliptic*
Semi-F—*Semi-Floating*
Sp.B—*Spiral Bevel*
Sp.G—*Spiral Gear*

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Their Technical Specifications—Continued

TRANSMISSION								RUNNING GEAR							BEARINGS			
GEARSET								TIRES										
Make	Location	Forward Speeds	Final Drive	Torque Taken By	Make of Rear Axle	Rear Axle Type	Gear Ratio on Direct	Front	Rear	Wheels	Rear Spr'gs	Make of Steering Gear	Make of Speedometer	Crankshaft Bearings and Number	Gearset	Rear Axle	Front Wheel	MAKE AND MODEL
Own	Unit T...	3	Sp.B...	Tor-T....	Own.....	¾ Float..	4.25-1	32x4	32x4	Wood...	Cant..	Own.....	Stewart.....	Plain 3...	B&R..	B&R .	Roll...	Mitchell.....D-40
Own	Unit T...	3	Sp.B...	Tor-T....	Own.....	Float...	4.25-1	34x4	34x4	Wood...	Cant..	Own.....	Stewart.....	Plain 3...	B&R..	Roll...	Roll...	Mitchell.....C-42
Warner.....	Amid....	3	Sp.B...	Tor-A....	Timken...	Semi-F..	4.90-1	34x4	34x4	Wood...	Brush.	Jacox.....	Stewart.....	Plain 3...	Roll...	Roll...	Roll...	Meline-Knight.....C
Warner.....	Amid....	3	Sp.B...	Tor-A....	Timken...	Semi-F..	4.00-1	35x4½	35x4½	Wood...	Brush.	Jacox.....	Stewart.....	Plain 3...	Roll...	Roll...	Roll...	Meline-Knight.....G
Grant-Lees...	Unit M...	3	Bevel..	Springs...	Adams....	Float...	{4.08-1 4.50-1	33x4	33x4	Wood...	¾ Ell..	Foster.....	Stewart.....	Plain.....	Ball...	B&R..	.....	Monitor.....
Mechanics....	Unit M...	3	Sp.B...	Tor-T....	W-Weiss...	¾ Float..	4.00-1	30x3	30x3	Wood...	S-E...	Jacox.....	Stewart.....	Plain 2...	Ball...	Ball...	B&R..	Monroe.....M-3
								31x3½	31x3½									
Mechanics....	Unit M...	3	Sp.B...	Tor-T....	Hess.....	Semi-F..	4.80-1	32x4	32x4	Opt.....	Brush.	Jacox.....	Stewart.....	Plain 2...	Ball...	Roll...	Roll...	Monroe.....M-6
Jacobson.....	Unit X...	3	Sp.B...	Tor-T....	Jacobson..	Semi-F..	4.75-1	32x3½	32x3½	Wood...	S-E...	Ditwiler.....	Stewart.....	Plain 3...	R&P..	Roll...	Roll...	Moon.....6-36
Grant-Lees...	Unit M...	3	Sp.B...	Springs...	Hess.....	Float...	4.75-1	34x4	34x4	Wood...	S-E...	Gemmer.....	Van Sicklen..	Plain 3...	Ball...	B&R..	Ball...	Moon.....6-45
Warner.....	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.45-1	35x4½	35x4½	Wood...	S-E...	Gemmer.....	Van Sicklen..	Plain 3...	Ball...	Roll...	Roll...	Moon.....6-66
Grant-Lees...	Unit-M...	3	Bevel..	Tor-A....	Peru.....	Float...	4.25-1	30x3½	30x3½	Wood...	Cant..	Ditwiler.....	Stewart.....	Plain 3...	Ball...	Roll...	Ball...	Moore.....30-E
Grant-Lees...	Unit-M...	3	Bevel..	Tor-T....	Peru.....	Float...	4.25-1	30x3½	30x3½	Wood...	Cant.	Gemmer.....	Stewart.....	Plain 3...	Ball...	B&R..	Ball...	Moore.....30
Covert.....	Unit M...	3	Sp.B...	Springs...	Timken...	Float...	{4.45-1 4.08-1	34x4½	34x4½	Wood...	¾ Ell..	Gemmer.....	Stewart.....	Plain 3...	Ball...	Roll...	Roll...	Murray.....
Own.....	Unit M...	3	Sp.B...	Springs...	Own.....	Semi-F..	4.50-1	34x4	34x4	Wood...	S-E...	Gemmer.....	Stewart.....	Plain 3...	Roll...	Roll...	Roll...	Nash.....681-683
Own.....	Unit M...	3	Sp.B...	Springs...	Own.....	Semi-F..	4.50-1	34x4	34x4	Wood...	¾ Ell..	Gemmer.....	Van Sicklen..	Plain 3...	Roll...	Roll...	Roll...	Nash.....671
Own.....	Unit M...	3	Sp.B...	Springs...	Own.....	Semi-F..	4.50-1	34x4	34x4	Wood...	S-E...	Gemmer.....	Stewart.....	Plain 3...	Roll...	Roll...	Roll...	Nash.....684
Warner.....	Unit M...	3	Sp.B...	Tor-A....	Columbia..	Float...	4.58-1	34x4½	34x4½	Wood†	Cant.	Warner.....	Warner.....	Plain 3...	Ball...	Roll...	Ball...	National.....
Warner.....	Unit M...	3	Sp.B...	Tor-A....	Columbia..	Float...	4.58-1	34x4½	34x4½	Wood†	Cant.	Warner.....	Warner.....	Plain 3...	Ball...	Roll...	Roll...	National.....
Own.....	Unit X...	3	Sp.B...	Rad-Rd..	Own.....	Float...	4.25-1	32x4	32x4	Wood...	Trans.	Own.....	Stewart.....	Plain 2...	B&R..	B&R..	Ball...	Nelson.....
T.W.Warner..	Unit M...	3	Bevel..	Springs...	West-M...	Float...	4.50-1	32x4	32x4	Wood...	S-E...	Jacox.....	Stewart.....	Plain 3...	B&P..	B&R..	Ball...	Oakland.....34B
Northway....	Unit M...	3	Sp.B...	Springs...	West-M...	Float...	4.58-1	32x4	32x4	Wood...	S-E...	Jacox.....	Stewart.....	Plain 3...	BR&P	B&R..	Roll...	Oldsmobile.....37
Own.....	Unit M...	3	Sp.B...	Springs...	West-M...	Float...	4.92-1	34x4	34x4	Wood...	¾ Ell..	Jacox.....	Stewart.....	Plain 2...	BR&P	B&R..	Roll...	Oldsmobile.....45A
Own.....	Unit M...	3	Sp.B...	Rad-Rd..	Own.....	¾ Float..	4.75-1	32x3½	32x3½	Opt.....	Trans.	Warner.....	Stewart.....	Plain 2...	B&P..	B&R..	Ball...	Olympian.....
Own.....	Unit X...	....	Bevel..	Tor-T....	Own.....	¾ Float..	4.00-1	32x4	32x4	Wood...	Cant..	Own.....	Stewart.....	Plain 5...	B&R..	B&R..	Roll...	Overland.....85
Own.....	Unit X...	....	Bevel..	Tor-T....	Own.....	¾ Float..	4.00-1	31x4	31x4	Wood...	Cant..	Own.....	Stewart.....	Plain 2...	BR&P	B&R..	Roll...	Overland.....90
Own.....	Unit X...	....	Sp.B...	Tor-T....	Own.....	¾ Float..	4.60-1	32x4	32x4	Wood...	Cant..	Own.....	Stewart.....	Plain 3...	B&R..	B&R..	Roll...	Overland.....85
Magnetic.....	Unit M...	6	Sp.B...	Springs...	American..	Float...	4.00-1	35x5	35x5	Opt.....	S-E...	Own.....	Stewart.....	Plain 3...	.....	Roll...	Roll...	Owen Magnetic.....W-42
Own.....	Unit M...	3	Sp.B...	Tor-A....	Own.....	Semi-F..	4.36-1	35x5	35x5	Wood...	S-E...	Own.....	Waltham....	Plain 3...	B&R..	Ball...	Roll...	Packard.....3-25 & 3-35
Own.....	Unit M...	3	Sp.B...	Tor-T....	Salisbury..	¾ Float..	4.42-1	32x4	32x4	Wood...	Cant..	Jacox.....	Stewart.....	Plain 3...	BR&P	B&R..	Roll...	Paige.....6-39
Own.....	Unit M...	3	Sp.B...	Tor-T....	Salisbury..	¾ Float..	4.36-1	35x4½	35x4½	Wood...	Cant..	Jacox.....	Stewart.....	Plain 3...	BR&P	B&R..	Ball...	Paige.....6-55
Warner.....	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.45-1	33x4½	33x4½	Wood...	S-E...	Warner.....	Stewart.....	Plain 3...	Ball...	Roll...	Roll...	Pan American.....G-5
Warner.....	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	3.70-1	33x4½	34x5	Wood...	S-E...	Warner.....	Stewart.....	Plain 3...	Ball...	Roll...	Roll...	Pan American.....J-7
Detroit.....	Unit M...	3	Sp.B...	Springs...	Hess.....	Float...	4.50-1	32x4	32x4	Wood...	¾ Ell..	Jacox.....	Stewart.....	Plain.....	Plain..	Roll...	Ball...	Paterson.....6-45
Brown-Lipe...	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.90-1	35x4½	35x4½	Wood...	Plat...	Gemmer.....	Warner.....	Plain 3...	B&R..	Roll...	Roll...	Peerless.....56
Grant-Lees...	Unit M...	3	Bevel..	Springs...	W-Weiss...	Semi-F..	4.00-1	32x3½	32x3½	Wood...	S-E...	Gemmer.....	Van Sicklen..	Plain 3...	Roll...	Roll...	Ball...	Pennsy.....
Detroit.....	Unit M...	3	Sp.B...	Springs...	Columbia..	Float...	4.58-1	33x4	33x4	Wood...	¾ Ell..	Gemmer.....	Van Sicklen..	Plain 3...	Ball...	Roll...	Ball...	Pennsy.....
.....	Amid....	4	Sp.B...	Rad-Rd..	.....	Float...	4.00-1	32x4½	32x4½	Opt.....	Cant..	.....	Warner.....	Plain 3...	Ball...	Roll...	B&R..	Phianna.....M
Own.....	Amid....	4	Sp.B...	Tor-T....	Own.....	Semi-F..	3.78-1	34x4½	34x4½	Wood...	¾ Ell..	Own.....	Warner.....	Plain 7...	Ball...	B&R..	Roll...	Pierce-Arrow.....C-4
Own.....	Amid....	4	Sp.B...	Tor-T....	Own.....	Semi-F..	3.53-1	35x5	35x5	Wood...	¾ Ell..	Own.....	Warner.....	Plain 7...	Ball...	B&R..	Roll...	Pierce-Arrow.....B-4
Own.....	Amid....	4	Sp.B...	Tor-T....	Own.....	Semi-F..	2.88-1	36x5½	36x5½	Wood...	¾ Ell..	Own.....	Warner.....	Plain 7...	Ball...	B&R..	Roll...	Pierce-Arrow.....A-4
Muncie.....	Unit M...	3	Sp.B...	Tor-T....	Hess.....	¾ Float..	4.25-1	32x4	32x4	Wood...	Cant..	C. A. S.....	Stewart.....	Plain 3...	B&R..	B&R..	Roll...	Pilot.....6-45
Detroit.....	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.45-1	32x4½	32x4½	Wood...	S-E...	Warner.....	Warner.....	Plain 3...	B&P..	Roll...	Roll...	Premier.....6-C
Grant-Lees...	Unit M..	3	Sp.B...	Springs...	Own.....	Float...	4.25-1	32x3½	32x3½	Wood...	¾ Ell..	.....	Van Sicklen..	Plain 3...	B&R..	B&R..	Ball...	Princess.....36-F
Grant-Lees...	Unit M...	3	Bevel..	Tor-T....	Peru.....	Float...	4.25-1	30x3½	30x3½	Wood...	Cant..	C. A. S.....	Stewart.....	Plain 3...	Ball...	B&R..	Ball...	Regal.....J
Own.....	Amid....	3	Sp.B...	Tor-A....	Own.....	Semi-F..	4.30-1	34x4	34x4	Wood...	¾ Ell..	Own.....	Stewart.....	Plain 3...	Roll...	Roll...	Roll...	Reo.....R
Own.....	Amid....	3	Sp.B...	Tor-A....	Own.....	Float...	4.30-1	34x4½	34x4½	Wood...	Cant..	Own.....	Stewart.....	Plain 3...	Roll...	Roll...	Roll...	Reo.....M
Grant-Lees...	Unit M...	3	Sp.B...	Tor-T....	Hess.....	¾ Float..	3.77-1	32x4½	32x4½	Wire....	S-E...	Jacox.....	Stewart.....	Plain 3...	B&R..	Ball...	Ball...	Reamer.....D-4-75
Grant-Lees...	Unit M...	3	Sp.B...	Tor-T....	Hess.....	¾ Float..	3.77-1	32x4	32x4	Wire....	S-E...	Jacox.....	Stewart.....	Plain 3...	B&R..	Ball...	Ball...	Reamer.....C-6-54
Fuller.....	Unit M...	3	Sp.B...	Tor-T....	Timken...	Float...	3.50-1	34x4½	34x4½	Wire....	S-E...	Jacox.....	Warner.....	Plain 3...	B&R..	Ball...	Roll...	Reamer.....D-6-90
Own.....	Unit X...	3	Sp.B...	Tor-T....	Timken...	Semi-F..	5.00-1	30x3	30x3	Wood...	¼ Ell..	Own.....	Standard....	Plain 2...	BR&P	B&R..	Ball...	Saxon.....B-5
Own.....	Unit X...	3	Sp.B...	Tor-T....	Timken...	Semi-F..	4.75-1	32x3½	32x3½	Opt.....	Cant..	Warner.....	Stewart.....	Plain 3...	BR&P	Roll...	Roll...	Saxon.....S-4
Mechanics....	Unit M..	3	Sp.B...	Springs...	Hess.....	¾ Float..	4.75-1	32x4	32x4	Wood...	S-E...	Warner.....	Stewart.....	Plain 3...	B&P..	B&R..	Ball...	Sayers.....
T.W.Warner..	Unit M..	3	Bevel..	Rad-Rd..	W-Weiss...	¾ Float..	{3.69-1 4.07-1	30x3½	30x3½	Wire....	Cant..	Jacox.....	Stewart.....	Plain 3...	B&P..	.....	Ball...	Scripps-Booth.....G

Splash-Pres—*Splash Pressure*
Spur—*Spur Gears*
T—*T-Head*
Ther—*Thermo-Syphon*
Tor-A—*Torsion Arm*
Tor-R—*Torsion Rod*
Tor-T—*Torsion Tube*
Tr S-E—*Tranverse Semi-Elliptic*
Unit-M—*Unit with Motor*
Unit-T—*Unit with Torque Tube*
Unit-X—*Unit with Axle*
Vib-Dup—*Vibrating Duplex*
†—*Wire Extra*

EQUIPMENT

Allis-Ch—*Allis-Chalmers*
At Kent—*Atwater Kent*
A. W. T.—*American Watch Tool Co.*
Continent—*Continental*
Cut-Hammer—*Cutler-Hammer*
G.B.&S.—*Golden, Belknap & Swartz*
G. & D.—*Gray & Davis*
Gen. Elec.—*General Electric*
Hersh-Sp—*Herschell-Spillman*
Johns-Man—*Johns-Manville*
Leece-N—*Leece-Neville*
Longmare—*Longuemare*
Mass-Ph—*Massnick-Phipps*
Mer & Evans—*Merchant & Evans*
Reichbch—*Reichenbach*
Rob-Myers—*Robbins & Myers*
Shkspere—*Shakespeare*
Teet-Hart—*Testor-Hartley*
U-S-L—*U. S. Light & Heating Corp.*
W-Weiss—*Walker-Weiss*
Ward-L—*Ward Leonard*
West-M—*Weston-Mott*

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1918 Passenger Automobiles Listed with

MAKE AND MODEL	Wheel-base	No. of Cylinders	Bore and Stroke, Inches	Piston Displacement, Cubic Inches	Make of Engine	Cylinder Shape	Cam-shaft Drive	Water Circulation	LUBRICATION		CARBURETION		IGNITION			ELECTRIC SYS.		CLUTCH	
									System	Type of Pump	Make of Carburetor	Fuel Feed	System	Make	Control	Generator Make	Voltage	Make	Type
Scripps-Booth.....H	120	8	2½x3½	162	Ferro.....	I..	Helical..	Ther..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Remy.....	Atmtc	Wagner.....	6	Goodspeed..	Disk...
Seneca.....O	108	4	3½x4½	138	LeRoi.....	F..	Helical..	Ther..	Circ-Spl.....	.....	Schebler....	Vacuum..	Single..	.....	Hand.	Allis-Ch.....	6	Borg & Beck	Plate...
Shad-Wyck.....A&B	128	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayf.-Miller	Vacuum..	Single..	Eisemann....	Hand.	Westinghouse	6	Warner....	Disk...
Simplex.....V	143½	6	4½x6½	564	Own.....	L..	Chain...	Cent..	Splash-Pres..	Gear...	Newcomb...	Pressure..	Dual...	Eisemann....	Hand.	Bosch.....	12	Own.....	Disk...
Singer.....	139	6	4 x5½	414	Hersh-Sp..	T..	Helical..	Cent..	Pressure.....	Gear...	Rayfield....	Vacuum..	Single..	Bosch.....	Hand.	Westinghouse	6	Muncie.....	Disk...
Standard.....G	127	8	3½x5	332	Hersh-Sp..	L..	Helical..	Cent..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Splitdorf....	Hand.	Westinghouse	6	Borg & Beck	Plate...
States.....C	110	6	3 x4½	191	Own.....	L..	Helical..	Ther..	Splash-Pres..	Piston..	Shkspere...	Vacuum..	VibDup	Connecticut..	Hand.	Dyneto.....	6	Borg & Beck	Plate...
Stearns.....SKL	119	4	3½x5½	248	Own.....	K..	Chain...	Cent..	Splash-Pres..	Gear...	Schebler....	Vacuum..	Single..	Remy.....	Hand.	Westinghouse	12	Own.....	Disk...
Stearns.....SK	125	8	3½x5	332	Own.....	K..	Chain...	Ther..	Splash-Pres..	Gear...	Rayfield....	Vacuum..	Single..	Remy.....	Hand.	Westinghouse	12	Own.....	Disk...
Stephens.....	118	6	3½x4½	224	Own.....	I..	Helical..	Ther..	Pressure.....	Gear...	Stromberg..	Vacuum..	Single..	Delco.....	Hand.	Delco.....	6	Borg & Beck	Plate...
Studebaker.....SH	112	4	3½x5	192	Own.....	L..	Helical..	Cent..	Circ-Spl.....	Gear...	.....	Vacuum..	Single..	Remy.....	Hand.	Wagner.....	6	Own.....	Cone...
Studebaker.....EH	119	6	3½x5	289	Own.....	L..	Helical..	Cent..	Circ-Spl.....	Gear...	.....	Vacuum..	Single..	Remy.....	Hand.	Wagner.....	6	Own.....	Cone...
Studebaker.....EG	126	6	3½x5	354	Own.....	L..	Helical..	Cent..	Circ-Spl.....	Gear...	.....	Vacuum..	Single..	Remy.....	Hand.	Wagner.....	6	Own.....	Cone...
Stutz.....S	120	4	4½x5	361	Own.....	T..	Helical..	Cent..	Pressure.....	Gear...	Stromberg..	Pressure..	Double.	Remy.....	Hand.	Remy.....	6	Own.....	Cone...
Templar.....445	118	4	3½x5½	197	Own.....	I..	Chain...	Cent..	Pressure.....	Gear...	Zenith.....	Vacuum..	Single..	Remy.....	S-A...	Remy.....	6	Borg & Beck	Plate...
Tulsa.....D	117½	4	3½x5	192	Lycoming..	L..	Helical..	Ther..	Circ-Spl.....	Piston..	Rayfield....	Vacuum..	Single..	Delco.....	Hand.	Dyneto.....	6	Borg & Beck	Plate...
Velie.....38	115	6	3½x4½	224	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	S-A...	Remy.....	6	Borg & Beck	Plate...
Velie.....39	124	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Remy.....	S-A...	Remy.....	6	Borg & Beck	Plate...
Westcott.....	125	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Rayfield....	Vacuum..	Single..	Delco.....	S-A...	Delco.....	6	Brown-Lipe.	Disk...
White.....	{124½ {137½	4	4½x5½	326	Own.....	T..	Helical..	Cent..	Pressure.....	Gear...	Own.....	Vacuum..	Single..	.....	Hand.	Leece-N.....	12	Own.....	Disk...
Willys.....89	120	6	3½x5½	303	Continent.	L..	Helical..	Cent..	Splash-Pres..	Piston..	Tillotson...	Vacuum..	Single..	Connecticut..	Hand.	Auto-Lite....	6	Own.....	Cone...
Willys-Knight.....88	121	4	4½x4½	240	Own.....	K	Chain...	Ther..	Splash-Pres..	Piston..	Tillotson...	Vacuum..	Single..	.....	Hand.	Auto-Lite....	6	Auto-Lite...	Cone...
Willys-Knight.....88	125	8	3½x4	286	Own.....	K	Chain...	Ther..	Splash-Pres..	Piston..	Zenith.....	Vacuum..	Single..	Remy.....	H&A..	Auto-Lite....	6	Auto-Lite...	Cone...
Winton.....33	128	6	3½x5½	348	Own.....	L..	Chain...	Cent..	Pressure.....	Piston..	Rayfield....	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	.....	Disk...
Winton.....48	138	6	4½x5½	525	Own.....	L..	Chain...	Cent..	Pressure.....	Piston..	Rayfield....	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	.....	Disk...
Wolverine.....	115	4	3½x6	298	Dues'nb'rg	H..	Helical..	Cent..	Ciro-Spl.....	Piston..	Miller.....	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	Warner....	Disk...
Wolverine.....	125	4	4½x6	361	Dues'nb'rg	H..	Helical..	Cent..	Ciro-Spl.....	Piston..	Miller.....	Vacuum..	Single..	Bosch.....	Hand.	Bijur.....	6	Warner....	Disk...
Woods Gas-Electric.....	124	4	2½x4	95	Continent.	L..	Helical..	Ther..	Splash-Pres..	Piston..	Stromberg..	Gravity..	Single..	At Kent.....	Atmtc	Own.....	60	.....	.....
Yale.....M	126	8	3 x5	283	Colonial...	T..	Chain...	Ther..	Ciro-Spl.....	Piston..	Zenith.....	Vacuum..	Single..	Remy.....	Hand.	Bijur.....	6	Detroit.....	Disk...

ABBREVIATIONS

2-pt—*Two Point*
¾ Ell—¾ *Elliptic*
¾ Float—¾ *Floating*
¾ Plat—¾ *Platform*
Amid—*Amidships*
Atmtc—*Automatic*
B & P—*Ball and Plain*
B & R—*Ball and Roller*
B R & P—*Ball, Roller and Plain*
C & C—*Cup and Cone*
Cant—*Cantilever*
Cent—*Centrifugal*
Circ-Spl—*Circulating Splash*
Dual-D—*Dual Double*
Ell—*Elliptic*
F—*F-Head*
Float—*Floating*
Fric—*Friction*
Gear—*Gear Pump*
H—*Horisontal*
H & A—*Hand and Automatic*
I—*I-Head*
Imp—*Impeller*
K—*Knight type*
L—*L-Head*
Mag—*Magnetic*
Non-Spl—*Non-Circulating Splash*
Opt—*Optional*
Plan—*Planetary*
Plat—*Platform*
Rad-Rd—*Radius Rods*
Rev-C—*Reversed Cone*
Roll—*Roller*
S-A—*Semi-Automatic*
S-E—*Semi-Elliptic*
Semi-F—*Semi-Floating*
Sp.B—*Spiral Bevel*
Sp.G—*Spiral Gear*

1918 Steam-Driven

Name and Model	Wheel-base	Type of Boiler	Boiler Location	Type of Engine	Type of Valve Gear	Type of Valves	No. of Cylinders	Bore and Stroke	LUBRICATION		Engine Location	Final Drive	Fuel
									Cylinders	Engine			
Doble.....D	135	Water Tube...	Under Hood...	Dbl. Acting....	Own.....	.....	2	5x4	.....	.....	Rear Axle...	Spur Gear...	Kerosene....
Stanley.....	130	Fire Tube.....	Under Hood...	Dbl. Acting....	Stephenson....	Slide.....	2	4x5	Plunger Pump	Splash.....	Rear Axle...	Spur Gear...	Kerosene....

These Tables are for reference and constant consulta

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Their Technical Specifications—Continued

TRANSMISSION							Gear Ratio on Direct	RUNNING GEAR				Make of Steering Gear	Make of Speedometer	Crankshaft Bearings and Number	BEARINGS			MAKE AND MODEL
GEARSET			Final Drive	Torque Taken By	Make of Rear Axle	Rear Axle Type		TIRES		Wheels	Rear Spr'gs				Gearset	Rear Axle	Front Wheel	
Make	Location	Forward Speeds						Front	Rear									
.W.Warner	Unit M...	3	Sp.B...	Rad-Rd..	Russel....	¾ Float..	{4.80–1 5.33–1	32x4	32x4	Wire....	Cant..	Own.....	Stewart.....	Plain 2...	B&P..	.....	Ball...	Scripps-Booth.....H
etroit.....	Unit M...	3	.....	Tor-T....	Adams....	Float...	4.50–1	30x3½	30x3½	Wood†..	Cant..	Ditwiler.....	Stewart.....	Plain....	Ball...	Ball...	Ball...	Seneca.....O
Varner	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.45–1	33x4½	33x4½	Wire....	S-E...	Gemmer....	Van Sicklen..	Plain 3...	Ball...	Roll...	Roll...	Shad-Wyck.....A&B
)wn.....	Unit M...	4	Sp.B...	Springs...	Own.....	Float...	3.00–1	Opt....	Opt....	Opt.....	S-E...	Own.....	Stewart.....	Plain 3...	Roll...	B&R..	Roll...	Simplex.....V
Muncie.....	Unit M...	4	Sp.B...	Tor-T....	Timken...	Float...	3.70–1	35x5	35x5	Wire....	Cant..	Gemmer.....	Stewart.....	Plain 3...	Ball...	Roll...	Roll...	Singer.....
Grant-Lees...	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.45–1	34x4½	34x4½	Wood...	S-E...	Gemmer.....	Stewart.....	Plain 3...	B&R..	Roll...	Roll...	Standard.....G
Detroit.....	Unit M...	3	Sp.B...	Tor-T....	Own.....	Float ..	4.00–1	30x3½	31x4	Wire....	Cant..	Own.....	Van Sicklen..	Plain 3...	Ball...	B&R..	Ball..	States.....C
Own.....	Unit M...	3	Sp.B...	Tor-A....	Own.....	Semi-F..	4.50–1	34x4	34x4	Wood...	Cant..	Own.....	Stewart.....	Plain 3...	B&R..	B&R..	Roll...	Stearns.....SKL
Own.....	Unit M...	3	Sp.B...	Tor-A....	Own.....	Semi-F..	4.75–1	35x4½	35x4½	Wood...	Cant..	Own.....	Stewart.....	Plain 3...	.....	.....	Roll...	Stearns.....SK
Mechanics ...	Unit M...	3	Sp.B...	Springs...	Hess.....	Float...	4.75–1	32x4	32x4	Wood...	S-E...	Gemmer.....	Van Sicklen..	Plain 3...	Ball...	Roll...	Roll...	Stephens.....
Own.....	Amid....	3	Sp.B...	Springs...	Own.....	Semi-F..	4.08–1	32x3½	32x3½	Wood...	S-E...	Own.....	Warner.....	Plain 3 ..	R&P..	Roll...	Roll...	Studebaker.....SH
Own.....	Amid....	3	Sp.B...	Springs...	Own.....	Semi-F..	4.00–1	32x4	32x4	Wood...	S-E...	Own.....	Warner.....	Plain 4...	R&P..	Roll...	Roll...	Studebaker.....EH
Own.....	Amid....	3	Sp.B...	Springs...	Own.....	Semi-F..	3.71–1	33x4½	33x4½	Wood...	S-E...	Own.....	Warner.	Plain 4...	R&P..	Roll...	Roll...	Studebaker.....EG
Own.....	Unit X...	3	Bevel..	Tor-T....	Own.....	¾ Float..	3.50–1	32x4½	32x4½	Wire....	S-E...	Gemmer.....	Stewart	Plain 3...	Ball...	B&R..	Roll...	Stutz.....S
Detroit.....	Unit M...	3	Sp.B...	Springs...	American..	Semi-F..	4.81–1	32x4	32x4	Wood...	S-E...	Jacox.....	Stewart.....	Plain 3...	B&P..	B&R..	Roll...	Templar.....445
Grant-Lees...	Unit M..	3	Sp.B...	Springs...	Salisbury..	.....	4.50–1	32x	35x	Opt.....	S-E...	C. A. S.....	Stewart.....	Plain 2...	Ball...	B&R..	Ball...	Tulsa.....D
Durston.....	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.75–1	32x4	32x4	Wood...	¾ Ell..	Gemmer.....	Stewart.....	Plain 3...	Ball...	Roll...	Roll...	Velie.....38
Warner.....	Unit M...	4	Sp.B...	Springs...	Timken...	Semi-F..	4.45–1	33x4½	33x4½	Wood...	¾ Ell..	Gemmer....	Van Sicklen..	Plain 3...	Ball...	Roll...	Roll...	Velie.....39
Brown-Lipe...	Unit M...	3	Sp.B...	Tor-T....	Timken...	¾ Float..	4.45–1	35x4½	35x4½	Wood...	Cant..	Gemmer.....	Warner.....	Plain 3...	B&R..	Roll...	Roll...	Westcott.....
Own.....	Unit M...	4	Sp.B...	Springs...	Own.....	Semi-F..	.....	35x5	35x5	Wood...	S-E...	Own.....	Stewart.....	Plain 3...	Ball...	Ball...	Ball...	White.....
Own.....	Unit X...	3	Sp.B...	Tor-T....	Own.....	¾ Float..	4.00–1	33x4½	33x4½	Opt.....	Cant..	Own.....	Stewart.....	Plain 3...	B&R..	B&R..	Roll...	Willys.....89
Own.....	Unit X...	3	Sp.B...	Tor-T....	Own.....	Float...	4.30–1	34x4½	34x4½	Wood...	Cant..	Own.....	Warner.....	Plain 3...	BR&P	Roll...	Roll...	Willys-Knight.....88
Own.....	Unit X...	3	Sp.B...	Tor-T....	Own.....	Float...	4.60–1	34x4½	34x4½	Wood...	Cant..	Own.....	Warner.....	Plain 2...	BR&P	Roll...	Roll...	Willys-Knight.....88
Own.....	Unit M...	4	Sp.B...	Tor-R....	Own.....	Float...	4.45–1	36x4½	36x4½	Wood...	¾ Ell..	.....	Warner.....	Plain 4...	B&R..	Roll...	Roll ..	Winton.....33
Own.....	Unit M...	4	Sp.B...	Tor-R....	Own.....	Float...	4.08–1	37x5	37x5	Wood...	¾ Ell..	.....	Warner.....	Plain 4...	B&R..	Roll...	Roll...	Winton.....48
Warner.....	Unit M...	3	Sp.B...	Springs...	American..	Float...	2.94–1	32x4½	32x4½	Wire....	S-E...	Warner.....	Warner.....	Plain 3...	Ball...	Roll...	Roll...	Wolverine.....
Warner.....	Unit M...	3	Sp.B...	Springs...	American..	Float...	4.00–1	32x4½	32x4½	Wire....	S-E...	Warner.....	Warner.....	Plain 3...	Ball...	Roll...	Roll...	Wolverine.....
Electric.....	Unit M...	....	Worm..	Tor-A....	Own.....	Semi-F..	8.25–1	35x4½	35x4½	Wood...	Cant..	Gemmer....	Stewart.....	Plain 3...	None.	B&R..	Roll...	Woods.....
Detroit.....	Unit M...	3	Sp.B...	Springs...	Timken...	Semi-F..	4.50–1	34x4	34x4	Opt.....	S-E...	Jacox.....	Stewart.....	Plain 3...	Ball...	Roll...	Roll...	Yale.....M

Splash-Pres—*Splash Pressure*
Spur—*Spur Gears*
T—*T-Head*
Ther—*Thermo-Syphon*
Tor-A—*Torsion Arm*
Tor-R—*Torsion Rod*
Tor-T—*Torsion Tube*
Tr S-E—*Tra verse Semi-Elliptic*
Unit-M—*Unit with Motor*
Unit-T—*Unit with Torque Tube*
Unit-X—*Unit with Axle*
Vib-Dup—*Vibrating Duplex*
†—*Wire Extra*

EQUIPMENT

Allis-Ch—*Allis-Chalmers*
At Kent—*Atwater Kent*
A. W. T.—*American Watch Tool Co.*
Continent—*Continental*
Cut-Hammer—*Cutler-Hammer*
G.B.&S.—*Golden, Belknap & Swarts*
G. & D.—*Gray & Davis*
Gen. Elec.—*General Electric*
Hersh-Sp—*Herschell-Spillman*
Johns-Man—*Johns-Manville*
Leece-N—*Leece-Neville*
Longmare—*Longuemare*
Mass-Ph—*Massnick-Phipps*
Mer & Evans—*Merchant & Evans*
Reichbch—*Reichenbach*
Rob-Myers—*Robbins & Myers*
Shkspere—*Shakespeare*
Teet-Hart—*Teetor-Hartley*
U-S-L—*U. S. Light & Heating Corp.*
W-Weiss—*Walker-Weiss*
Ward-L—*Ward Leonard*
West-M—*Weston-Mott*

Passenger Automobiles

Control	Fuel Feed	Type of Burner	Feed Water Control	Rear Axle Ratio	Car Drives Through	Torque Taken By	BEARINGS		Wheels		Speedometer	Rear Springs	Name and Model
							Rear Axle	Front Wheel					
Automatic...	Pressure.....	.....	.....	.....	Radius Rods...	.....	American.....	.....	35x5	35x5	.....	Semi-Elliptic...	Deble.....D
Automatic...	Pressure.....	Vaporizing..	Automatic...	1.50–1	Radius Rods...	Engine Frame..	Timken.....	Timken.....	34x4	35x4½	Stewart.....	Elliptic.....	Stanley .....

tion in the carrying on of your business—Save them

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BUYERS' GUIDE

To America's Motor Cars

This is for reference and is to be used with the pictures of 1918 cars appearing on pages 17 to 45

SEVEN-PASSENGER TOURING CARS

Name and Model	Cyl.	Price
Abbott, 6-62	6	....
Anderson, 20	6	....
Apperson, 8-18-7	8	$2550
Apperson, 6-17-7	6	2200
Auburn, 6-44	6	1685
Buick, E-6-49	6	1495
Cadillac, 57	8	2805
Case, U	6	1875
Chalmers, 6-30	6	1535
Chandler, 25	6	1595
Chandler, 17-B		
Cole, 870 Tourster	8	2395
Cole, 860	8	1995
Crawford, 18-6-40	6	2250
Cunningham	8	4750
Davis, 6-J-18	6	1785
Davis, 6-H-18	6	1485
Deering Magnetic	6	3750
Dispatch, G	4	1250
Dorris, 1-C-6	6	2785
Empire, 70-A	6	1375
Fiat, E 17	4	5500
Fiat, 55		
Hal Twelve, 25	12	3600
Haynes, 39	6	1825
Haynes, 44	12	2785
Hudson Super-Six	6	1950
Jackson, Wolverine	8	1570
Jones, 26 A B	6	1675
Jones, 26 A B, Victoria	6	1775
Jordan, 60	6	1995
King, 8-EE	8	....
KisselKar, Double Six	12	2250
Lexington, R	6	....
Locomobile, 48	6	5950
Locomobile, 38	6	5000
Marmon, 34	6	3550
Marion-Handley, B-6-60	6	1850
McFarlan, Six	6	3500
Moline-Knight, G	4	1985
Moline-Knight, G. De Luxe	4	2250
Mitchell, C-42	6	1525
Moon, 6-66	6	1850
Moon, 6-45	6	1685
Murray	8	2800
Nash, 671	6	1465
National Highway, 6	6	1995
National Highway, 12	12	2595
Oldsmobile, 45-A	8	1467
Owen Magnetic, W-42	6	5300
Owen Magnetic, O-36		3950
Packard, 3-25	12	3700
Packard, 3-25, Salon	12	3700
Packard, 3-25	12	4100
Packard, 3-35, Salon	12	4100
Paige, 6-55	6	1775
Pan American, J-7	6	1885
Paterson, 6-45	6	1295
Peerless, 56	8	2340
Pennsy, 6-18	6	1425
Pierce-Arrow, 48-B-4	6	5500
Pierce-Arrow, 66-A-4	6	6500
Premier, 6-C	6	2285
Reo, M	6	1385
Singer	6	$3800
Standard, 8-G	8	2450
Stearns, SKL 4	4	1785
Stearns, SK 8	8	2575
Studebaker, 6	6	1695
Stutz, S	4	2750
Velie, 39	6	1595
Westcott, 18	6	1940
White, GM	4	5000
Willys Six, 89	6	1365
Willys-Knight, 88-4	4	1525
Willys-Knight, 88-8	8	2000
Winton Six, 33	6	3000
Winton Six, 48	6	3500
Yale, 8-M	8	1650

SIX-PASSENGER TOURING CARS

Name and Model	Cyl.	Price
Austin Highway King	12	$3750
Cunningham	8	4750
Daniels, 8	8	3100
Locomobile, 38	6	5000
Locomobile, 48	6	5950
Stutz, S	4	2750
Winton Six, 33	6	3000
Winton Six, 48	6	3500

STEAMERS

Name and Model	Cyl.	Price
Doble-Detroit, 7-pass	2	$3750
Stanley, 5-pass	2	2400
Stanley, 7-pass	2	2500
Stanley, roadster	2	2400

FIVE-PASSENGER TOURING CARS

Name and Model	Cyl.	Price
Allen, 41	4	$1095
American, 6-B	6	1375
Anderson, 20	6	....
Arbenz	4	725
Auburn, 6-39	6	1395
Bell	4	995
Bour-Davis, 18-B	6	1650
Bour-Davis, 18-A	4	1385
Brewster, I	4	7700
Briscoe, 4-24	4	725
Buick, E-6-45	6	1265
Buick, E-4-35	4	795
Campbell	4	835
Chalmers, 6-30	6	1485
Chevrolet, D-4	8	1385
Chevrolet, 490	4	635
Chevrolet, F-A	4	935
Columbia, 6	6	1350
Comet, C-50	6	1285
Commonwealth, 4-40	4	995
Crawford, 18-6-40	6	2250
Crow-Elkhart, CE-36	4	935
Crow-Elkhart, CE-36, DeLuxe	4	995
Davis, 6I-18	6	1485
Dodge	4	885
Dort	4	....
Elcar, 4	4	1095
Elcar, 6	6	1295
Elgin	6	1095
Empire, 50	4	1125
Empire, 70-A	6	1345
Fageol, custom built	6	....
Fergus, chassis only	6	....
Ford, T	4	360
Franklin, 9	6	$2050
F. R. P. chassis only	4	....
Geronimo, 6-A-45	6	1395
Geronimo	4	895
Ghent, 6-60	6	....
Glide, 6-40	6	1495
Grant, C	6	1055
Hackett, A-L	4	....
Harroun	4	785
Haynes, 38	6	1725
Hollier, 206	6	....
Hollier, 196	6	1085
Hollier, 188	8	1285
Hupmobile, R	4	1250
Inter-State, T	4	1000
Jackson, 8, Wolverine	8	1495
Kissel, 100-point	6	1295
Kline Kar, 6-38	6	1495
Lexington, R	6	1585
Liberty Six, 10-B	6	1350
Maibohm, B	6	975
Marion-Handley, B-6-60	6	1590
Marmon, 34	6	3500
Maxwell, 25	4	745
McFarlan, 125	6	3700
Metz, 25	4	695
Mitchell, D-40	6	1250
Mitchell, C-42	6	1510
Moline-Knight, C	4	1650
Monitor	6	1195
Monroe, M-6	4	995
Moon, 6-36	6	1195
Moore, 30	4	695
Nash, 681,583	6	1295
Oakland, 34-B	6	990
Oldsmobile, 37	6	1185
Olympian	4	965
Overland, 90	4	795
Overland, 85-4	4	930
Overland, 85-6	6	1130
Packard, 3-25, Phaeton	12	3700
Packard, 3-25, Salon Phaeton	12	3700
Paige, 6-39	6	1330
Pan American, G-5	6	1500
Paterson, 6-45	6	1265
Pennsy, 18	4	1035
Pennsy, 6-18	6	1335
Pierce-Arrow, 38-C-4	6	4800
Pierce-Arrow, 66-A-4	6	6400
Pierce-Arrow, 48-B-4	6	5400
Pilot, 6-45	6	1295
Princess, 4-36	4	875
Regal, J	4	795
Reo, R	4	985
Saxon, S-4	6	935
Sayers, 6	6	1495
Scripps-Booth, 6-39		
Seneca, 6	4	850
Shad-Wyck, A and B	6	2650
Seneca, A		735
States, C-18	6	995
Stearns, SKL-4	4	1785
Stephens, 6, 75	6	1485
Studebaker, 6	6	1295
Studebaker, 4	4	895

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Name and Model	Cyl.	Price
Templar, 445	4	$1985
Velie, 38	6	1340
Wescott, 18	6	1940
Westcott, S-18	6	1790
Winton Six, 33	6	2950
Winton Six, 48	6	3500
TWO-PASSENGER ROADSTERS		
Allen, 41	4	$1095
American, 6-B	6	1465
Austin	12	3750
Briscoe, 4-24, Runabout	4	....
Buick, E-4-34	4	795
Cadillac, 57	8	2805
Chalmers, 6-30	6	1485
Chevrolet, 490	4	620
Chevrolet, FA	4	935
Crawford	6	2250
Daniels, B	8	3100
Disbrow	4	2950
Dispatch, G	4	1150
Dodge	4	885
Empire, 51	4	1165
Ford, T, Runabout	4	345
Franklin, 9, Runabout	6	2000
Geronimo, 6-A-45	6	1260
Grant	6	1055
Hal, Twelve, 25	12	3600
Harvard	4	750
Homer-Laughlin, D	8	1050
Hupmobile, R	4	1250
Inter-State, T	4	950
Jackson Wolverine	8	1495
Kissel		
Kline Kar, 6-38	6	1495
Liberty Six, 10-B	6	1350
Maibohm, A. Sport	4	795
Maibohm, B	6	975
Maxwell, 25	4	745
McFarlan	6	3500
Mercer, Runabout	4	3400
Mercer, Raceabout	4	3250
Metz, 25	4	695
Mitchell, D-40	6	1250
Moore, 30	4	695
Monitor	6	1195
Murray	8	....
National, 6, Speedster	6	....
National, 12, Speedster	12	....
Nelson	4	1200
Oakland, 6, 34-B	6	990
Oldsmobile, 45-A	8	1467
Oldsmobile, 37	6	1185
Overland, 90	4	780
Peerless, 56, Sport	8	2490
Pierce-Arrow, 48-B-4	6	5400
Pierce-Arrow, 38-C-4	6	4800
Pierce-Arrow, 66-A-4	6	6400
Saxon, 4	4	445
Singer	6	4000
Standard, 8-G	8	2450
Stutz, S, Speedster	4	2550
Stutz, S	4	2550
Templar, 445	4	2255
Velie, 38	6	1340
Wolverine Speedway	4	3500
Winton Six, 33	6	2950
Winton Six, 48	6	3500
Yale, 8-M	8	1650
FOUR-PASSENGER ROADSTERS		
American Six, B, Cloverleaf	6	$1465
Apperson, 8-18-4, Chummy	8	2550
Apperson, 6-17-4	6	2200
Auburn, 6-39, Chummy	6	1345
Auburn, 6-39, Sport	6	1385
Auburn, 6-44, Chummy	6	1635
Austin Highway King	12	3750
Bell, Club	4	995
Bell, Special	4	1145
Biddle, H	4	2600
Bour-Davis, 18-A, Sport	4	1385
Briscoe, 4-24, Chummy	4	725
Case, 6, Sport	6	1875
Chalmers, 6-30, Duplex	6	1485
Chandler	6	1595
Chevrolet, 8	8	1385
Cole, 870	8	1995
Cole, 870	8	$2395
Cole, 871, Sportster	8	2395
Commonwealth, 4, Forty	4	995
Crawford	6	2250
Crow-Elkhart, CE-36, DeLuxe	4	995
Daniels, 8 Sportif	8	3100
Dispatch, Cloverleaf	4	1250
Elcar, 4	4	1095
Elcar, 6	6	1295
Elgin	6	....
Empire	6	1360
Franklin, 9	6	2050
Ghent, 6-60	6	....
Glide, 6-40, Club	6	1395
Harvard	4	985
Haynes, 39	6	1825
Haynes, 44	12	2785
Inter-State	4	1025
Jackson Wolverine, Cruiser	8	1495
Jordan, J-60	6	1995
KisselKar, Double Six	12	2250
KisselKar, 100 Point	6	1385
Kline Kar, 6-38	6	1495
Lexington, 0, Clubster	6	1385
Liberty Six, 10-B	6	1350
Marmon, 34	6	3550
Marion-Handley, B 6-60	6	1850
McFarlan, Destroyer	6	3750
McFarlan, 124	6	3500
Moline-Knight, C	4	1650
Moline-Knight, G	4	1985
Monitor	6	1195
Moon, 6-66	6	1850
Moon, 6-36	6	1095
Moon, 6-45	6	1575
Moore, 30	4	695
Murray	8	2800
Nash 6	6	1295
National Highway, 6	6	1995
National Highway, 12	12	2595
Oldsmobile, 45-A, Speedster	8	1550
Oldsmobile, 45-A	8	1467
Olympian	4	965
Overland Country Club	4	840
Owen Magnetic, O-36	6	3950
Packard, 3-25, Runabout	12	3700
Paige, 6-39, Cloverleaf	6	....
Pan American, H-4	6	1500
Paterson, 6-45	6	1295
Peerless, 56	8	2340
Pennsy, 18	4	1035
Pennsy, 6-18	6	1335
Pierce-Arrow, 38-C-4	6	4800
Pierce-Arrow, 66-A-4	6	6400
Pierce-Arrow, 48-B-4	6	5400
Pilot, 6-45	6	1295
Premier, Foursome	6	2285
Reo, M	6	1385
Saxon, 6, Chummy	6	935
Standard, 8-G	8	2450
Stearns, SKL 4	4	1785
Stearns, SK 8	8	2575
Stutz, S	4	2650
Velie, 38	6	1340
Velie, 39, Sport	6	1850
Westcott, 18	6	1890
White, GMT, Runabout	4	5000
Winton Six, 33, Cloverleaf	6	2950
Winton Six, 48, Cloverleaf	6	3500
Yale Eight, M, Speedster	8	1650
LIMOUSINES		
Austin, Highway King	12	$5250
Brewster	4	8500
Cadillac, 57	8	4145
Chalmers, 6-30	6	2925
Chandler	6	2895
Dorris, I-C-6	6	4150
Fiat, 55	4	6500
Franklin, 9	6	3200
Hal Twelve, 25	12	5000
Hudson Super Six	6	3400
Locomobile, 48	6	7200
Locomobile, 38	6	6200
Marmon, 34	6	5250
McFarlan	6	4650
Mitchell, C-42	6	2850
Murray	8	4000
Owen Magnetic, W-42	6	$6300
Packard, 3-25	12	5250
Packard, 3-35	12	5650
Paige, 6-55	6	3230
Peerless, 56	8	3690
Phianna	4	....
Pierce-Arrow, 48-B-4, Suburban	6	6800
Pierce-Arrow, 38-C-4	6	5900
Premier, 6C	6	3285
Singer	6	4750
Standard, 8-G	8	4000
Stearns, SKL 4	4	3350
Stearns, SK 8	8	3985
White, GM	4	6200
Willys-Knight, 88-4	4	2325
Willys-Knight, 88-8	8	2800
Winton Six, 48	6	4500
Winton Six, 33	6	3950
BROUGHAMS AND TOWN CARS		
Biddle, H, Town Car	4	$4000
Biddle, H	4	3900
Brewster	4	8300
Cadillac, 57, Town Limousine	8	4160
Chalmers, 6-30, Town Car	6	2925
Cunningham	8	6000
Fiat, E-17	4	6500
Fiat, 55		6500
Franklin, 9, Town Car	6	3200
Hal Twelve, 21-A	12	4500
Hal Twelve, 25	12	5000
Haynes, 44, Town Car	12	3985
Haynes, 39, Town Car	6	3250
Hudson Super-Six, Town Car	6	3400
Jordan, 60, Town Car	6	3300
Liberty Six, 10-B	6	2700
Marmon, 34	6	5250
McFarlan, Town Car	6	4600
Mitchell, C-42, Tourer	6	2850
Paige, 6-55, Town Car	6	3230
Pierce-Arrow, 38-C-4	6	5900
Pierce-Arrow, 66-A-4	6	7600
Pierce-Arrow, 48-B-4	6	6600
Singer	6	5350
Stearns, Town Car	4	3400
Stearns SK 8	8	3875
Velie, 38	6	2450
White, GMT	4	6050
Willys-Knight, 8	8	2800
Winton Six, 33, French Limousine	6	3950
Winton Six, 48, French Limousine	6	4500
CONVERTIBLE COUPES		
Anderson, 20	6	....
Crow-Elkart, CE 36	3	$1195
Dodge	4	1050
KisselKar, Double Six Sedané	12	2800
KisselKar, 100 Pt. Six	6	1885
Lexington, O	6	1545
Maibohm, A	4	1095
Oakland, 34-B	6	1150
Pilot, 6-45	6	1520
Westcott, 18	6	2790
CONVERTIBLE SEDANS		
Auburn, 6-39	6	$1595
Auburn, 6-44	6	1985
Crow-Elkhart, CE-36	4	1275
Dodge, Winter Car	4	1050
Glide, 6-40	6	1795
Grant, G	6	1350
KisselKar, Double Six, Sedané	12	2650
KisselKar, 100 Pt. Six	6	1885
Liberty, 10-B	6	1625
Mitchell, D-40	6	1550
Paige, 39	6	1925
Pilot, 6-45	6	1945
Stearns, SKL-4	4	2535
Westcott, 18	6	2790
Winton Six, 33	6	4000
LANDAULETS		
Brewster	4	$8500
Cadillac, 57	8	4310
Cadillac, 57	8	4295
Chalmers, 6-30	6	3025
Chalmers, 6-30, Town Landaulet	6	3025
Ford, T, Town Car	4	595
Hudson, Super-Six	6	3500

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Name and Model	Cyl.	Price
Hudson, Super-Six	6	$4252
Liberty, 6,10-B	6	2700
Locomobile, 48	6	7300
Locomobile, 38	6	6300
Marmon, 34	6	5350
Owen, O-36	6	5200
Packard, 3-25	12	5300
Packard, 3-35	12	5700
Pennsy, 6-18	6	1850
Phianna	4	....
Pierce-Arrow, 48-B-4	6	6800
Pierce-Arrow, 38-C-4	6	5900
Singer	6	4850
Stearns, SK8	8	3985
Stearns, SKL 4	4	3300
White, GM	4	6200
White GMT, Town Landaulet	4	6050
Winton Six, 33	6	4200
Winton Six, 48	6	4750

BERLINES

Brewster, Inclosed Drive	4	$7900
Cadillac, 57, Imperial	8	4345
Cunningham, Inside Drive	8	6000
Hudson, Super-Six, Limousine	6	3150
Jordan, 60, Sedan	6	2650
Locomobile, 38	6	6400
Locomobile, 48	6	7400
Maxwell, 25	4	1095
McFarlan	6	4900
Packard, 3-35, Imp. Limousine	12	5850
Packard, 3-25, Imp. Limousine	12	5450
Pierce-Arrow, 66-A-4, Vestibule Suburban	6	8000
Simplex-Crane	6	10200
Winton Six, 33, Four-Door Lim.	6	4200
Winton Six, 48, Four-Door Lim.	6	4750

FOUR-PASSENGER TOURING CARS

Abbott, 6-62	6	....
Apperson, 8-18	8	$2550
Biddle, H	4	2650
Cadillac, 57, Phaeton	8	2805
Cole, 8, 872, Tourster	8	2395
Columbia, 6, Sport	6	1450
Cunningham	8	4450
Cunningham	8	4250
Daniels, B	8	3100
Dorris, I-C-6	6	2785
Elgin, F	6	1095
Empire, 73	6	1360
Hal Twelve, 25, Touring Roadster	12	3750
Hudson, Super-Six, Phaeton	6	2050
Jackson, Wolverine Flyer	8	1575
Jordan, Sport Marine	6	2375
Jordan, 60	6	1995
King, 8, Foursome	8	....
Lexington, R, Spor Tour	6	1585
Locomobile, 48	6	6050
Locomobile, 38	6	5150
Maibohm, B, Phaeton	6	975
Mercer, Sporting	4	3500
Moore, 30	4	695
Murray	8	2800
National, 6, Sport Phaeton	6	1995
National, 12, Sport Phaeton	12	2595
Nelson	4	1400
Oldsmobile, 45-A, Sportster	8	1550
Packard, 3-25, Runabout	12	3700
Princess, 4-36-E	4	875
Scripps-Booth, H	8	1595
Shad-Wyck	6	2650
Singer, Sport Touring	6	4000
Stephens, Sport	6	1550
Templar, 445	4	1985
Templar, 445, Victoria	4	2155
Wolverine	4	3750
Willys Six, Club	6	1365
Winton Six, 48	6	3500
Winton Six, 33	6	2950

ODD-CAPACITY ROADSTERS

Biddle, H, 3-pass	4	$2650
Buick, E-Six-44, 3-pass	6	1265
Chalmers, 6-30	6	1485
Davis, J1-18, 5-pass	6	1785
Davis, 1-18, 5-pass	6	1485
Dort, 11 3-pass	4	....
Grant, G, 3-pass	6	1055
Jones, 26 A B, 5-pass	6	1675
King, 18, 3-pass	8	....
KisselKar, 100 Point Six	6	$1295
Kline Kar, 6-38, 3-pass	6	1495
Maxwell, 25, 3-pass	4	745
Mitchell, D-40, Club, 5-pass	6	1280
Mitchell, C-42, 3-pass	6	1490
Mitchell, C-42, Club, 5-pass	6	1560
Monroe, M-3, Club, 3-pass	4	995
Oakland, 34-B, 3-pass	6	990
Overland, 85-4, 3-pass	4	915
Overland, 85-6, 3-pass	6	1115
Paige, 6-39, 3-pass	6	1330
Pierce-Arrow, 38-C-4, 3-pass	6	4800
Pierce-Arrow, 66-A-4, 3-pass	6	6400
Pierce-Arrow, 48-B-4, 3-pass	6	5400
Princess, 3-pass	4	875
Reo, R, 3-pass	4	985
Scripps-Booth, G, 3-pass	4	935
States, C-18, 3-pass	6	995
Stephens 6-70, 3-pass	6	1485
Winton Six, 33, 3-pass	6	2950
Winton Six, 33, 3-pass Cloverleaf	6	2950

COUPES AND CABRIOLETS

Abbott, 6-62	6	....
Buick, E-6-46	6	$1695
Cadillac, 57	8	3205
Chalmers, 6-30, Cabriolet	6	1775
Chandler, 25	6	2195
Chevrolet, 490	4	1060
Cunningham, cabriolet	8	6000
Deering Magnetic	6	4350
Dispatch	4	1400
Dodge	4	1350
Dorris, I-C-6	6	3325
Ford, T	4	560
Franklin, 9, Cabriolet	6	2850
Franklin, 9, Brougham	6	2900
Grant, G	6	1575
Haynes, 39	6	2535
Haynes, 44	12	3335
Jordan, 60, Brougham	6	3000
Maibohm, A	4	1095
Maibohm, B, Cabriolet	6	1375
Maxwell, 25	4	1095
Mitchell, D-40	6	1850
Mitchell, C-42, Cabriolet	6	1960
Mitchell, C-42	6	2135
Moon, 6-66	6	2550
Moon, 6-66, Cabriolet	6	2350
Moon, 6-45, Cabriolet	6	2350
Murray	8	3600
National Highway, 6	6	2645
National Highway, 12	12	3245
Oakland, 34-B	6	1490
Oldsmobile, 37	6	1595
Olympian, Cabriolet	4	1340
Overland, 85-6	6	1420
Overland, 85-4	4	1285
Packard, 3-25	12	5050
Paige, 6-55	6	2850
Peerless, 56	8	2850
Phianna	4	....
Pierce-Arrow, 38-C-4	6	5700
Pierce-Arrow, 66-A-4	6	7400
Pierce-Arrow, 48-B-4	6	6400
Standard, 8-G	8	3500
Stearns, SKL 4	4	2400
Stearns, SK 8	8	3200
Stutz, S	4	3250
Velie, 38	6	1900
Velie, 38, Cabriolet	6	1850
White	4	6050
White, G. M. Cabriolet	4	6400
Willys-Knight, 88-4	4	2175
Winton Six, 33	6	3950
Winton Six, 33, Coupelet	6	3265
Winton Six, 48	6	4500
Winton Six, 48, Coupelet	6	3750
Woods Dual Power	4	2950

SEDANS

Anderson, 20	6	....
Apperson	8	$3400
Auburn, 6-44	6	2450
Austin	12	4950
Biddle, H	4	4100
Briscoe, 4-24, Coachaire	4	850
Buick, E-6-50	6	2175
Cadillac, 57, Brougham	8	$3650
Chandler, 25	6	2295
Comet	6	2150
Chevrolet, FA	4	1475
Crawford	6	2750
Daniels, B, Suburban Berlin	8	....
Davis, K-18	6	1850
Deering Magnetic	6	4500
Dispatch, G	4	1500
Dorris, I-C-6	6	3350
Dort, II	4	1095
Elcar, 4	4	1625
Elcar, 6	6	1795
Empire, 70-S	6	1685
Ford, T	4	695
Franklin, 9	6	2950
Ghent, 6-60	6	....
Hackett	4	....
Inter-State, T	4	1325
Jones, 26, A. B.	6	2550
Jordan, 60, Sport Limousine	6	3500
Liberty, 6, 10-B	6	1925
Marmon, 34	6	4950
Maxwell, 25	4	1095
McFarlan	6	4600
Moline-Knight, L	4	2280
Monroe, M-6	4	1850
Moon, 6-66	6	2650
Nelson	4	1800
Owen Magnetic, W-42	6	6300
Packard, 3-25, Brougham	12	5300
Packard, 3-25, Brougham	12	5400
Packard, 3-35, Brougham	12	5800
Paterson, 6-45	6	1795
Pennsy, 6-18	6	2250
Pierce-Arrow, 38-C-4	6	5900
Saxon, S-4	6	1395
Templar, 445	4	....
White, GMT	4	6050
Winton, Six, 33	6	4200
Winton Six, 48	6	4750

OPEN SEDANS

Case, All Season	6	$2375
Chalmers, 6-30, Tour.-Sedan	6	1950
Chevrolet, 490	4	1060
Chevrolet, FA	4	1475
Cole 8, Toursedan	8	....
Columbia, 6, Tour.-Sedan	6	....
Davis, 6K-18	6	1850
Dodge	4	1350
Dort 11, Sedanet	4	....
Elgin, A	6	1645
Grant, G	6	1595
Hal Twelve, 25	12	4500
Haynes, 39	6	2585
Haynes, 44	12	3385
Hudson, Super-Six	6	2750
Jackson Wolverine	8	2195
Jordan, 60	6	2750
King, EE	8	....
Kline Kar, 6-38	6	2195
Maibohm, B	6	1375
Marion-Handley, 6	6	....
Maxwell, 25	4	1095
Mitchell, D-40, Tour.-Sedan	6	1950
Mitchell, C-42, Tour.-Sedan	6	2275
Mitchell, C-42, Club Sedan	6	2185
Moon, 6-66	6	2650
Murray	8	4000
Nash, 6	6	1985
National, 6, Tour.-Sedan	6	2820
National, 12, Tour.-Sedan	12	3420
Oakland, 34-B, Tour-Sedan	6	1190
Oldsmobile, 37, All Season	6	1695
Olympian	4	1565
Overland, 90, Tour.-Sedan	4	1240
Overland, 85-6, Tour.-Sedan	6	1620
Paige, 6-39	6	....
Paige, 6-55	6	2850
Peerless, 56	8	2990
Premier	6	3285
Reo, M	6	1950
Standard, 8-G, Touring Sedan	8	3500
Stephens, 6	6	1985
Velie, 38	6	1885
Westcott, 18	6	2790
Willys Six, Tour.-Sedan	6	2045
Willys-Knight, 88-8, Tour.-Sedan	8	2700

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Engineering Developments

OF THE PAST YEAR

There Has Been No Important Change in Either Design or Construction

PROBABLY there will never again be a year in which the characteristics of the average American passenger car chassis will exhibit so little alteration. The coming of war has caused stagnation in engineering. If the war ends soon our engineers will pick up their work where they left it; if the war lasts for a long time the desire for economical operation will have its effect upon design. Thus in the near future there is sure to be more change than has taken place in the near past.

A large increase in price is the most noticeable change when all the averages are studied in chart form. Price has risen a total of $135 in 1917 from $1,687 to $1,822. The bottom price was touched two years ago, when the average was $1,600. The present price is $96 less than the average of 3 years ago.

Of course it is the rising cost of everything which has been the main factor in provoking the rise in price this year, but it is true that the tendency toward better quality of workmanship noted last year has continued.

If materials and labor had not risen in price since Jan. 1, 1917, it is probable that the average price of the American car would still have shown an increase. The low water mark of January, 1916, was uneconomically low, it was a low price caused partly by fear of decreasing demand.

There have been some mechanical changes which stand out prominently, as, for example, the increase in average wheelbase from 113¼ to 120¾ in. This takes us back to the average of a little more than a year ago. Engine size has also enlarged, the average piston displacement now being 269 cu. in. as against 222 last year.

It was commented last year that lowness in gear ratio had probably been reached, and this prophecy is upheld by the present figures, which show that the revolutions per mile now average 2500 instead of 2726. This is owing to an increase in average tire size from 31 to 34 in. as well, for there has been an actual decrease in gearing ratio, last year's average being 4.15 to 1 and this year's 4.22.

Of all the other averages tabulated, there are few showing more than the slightest alteration. Most of the curves follow their natural tendency; as, for example, the rise in the percentage of overhead valve engines and the increase in popularity of the disk clutch.

There is little change in the number of cylinders, but there are rather more sixes, 51.7 as against 47 per cent, and fewer eights and twelves in proportion. There are six fewer makers and twelve fewer chassis listed in the specifications.

Nineteen hundred and seventeen has been a year of manufacture rather than of design. It has been a year when a manufacturer's task was to get material and not to improve his machine; a year when engineers have been handicapped as never before.

The only changes which really count for anything, which are matters of principle as distinct from body changes or other matters of fashion, are those made to facilitate the burning of heavier fuel. These changes probably mark the beginning of a new era. They probably are the heralds of the time when gasoline will cease to be the motive power of road vehicles.

The change is from the purely gas engine to something more allied to the purely oil engine. Instead of merely metering the fuel and mixing it with air, the modern engines vaporize the fuel as well, or partially vaporize it. We are within sight of the practical engine, which will start, if necessary, as well as run on fuel with no light fraction of the time when double the present percentage of crude will be available as an automobile fuel.

Many of the anticipations of a year ago have not been realized, largely owing to the impossibility of doing much development work. Thus the expected general decrease in weight has not come about. Aluminum remains too scarce and expensive and the high grade steels required are in the same category. Electric or magnetic drive is another feature much discussed in 1916 and for the time being ignored because of war conditions.

The year of greatest change was 1915. Nineteen hundred and sixteen was the year of greatest production, and 1917 has been a year of consolidation of the engineering development of 1915 and the engineering experience of 1916. A great many old-fashioned stock parts have vanished. There has been a considerable cleaning up of stock motors in particular.

The period of spring experimentation has ended in a triumph for the semi-elliptic, although the cantilever and platform and even the elliptic springs have still their supporters. Argument that any one form has inherent advantages over another has ceased, it being realized that it is possible to get any desired result with any type of spring if sufficient care is taken with the design.

In axles, steering, electrical gear, carbureters and transmissions there have been no changes worth mentioning.

THE year of greatest change was 1915. Nineteen-sixteen was the year of greatest production and 1917 has been a year of consolidation of the engineering development of 1915 and the engineering experience of 1916.

THE typical American passenger car is a six-cylinder machine with an engine having dimensions 3½ x 5 in. stroke. The engine size proportions and variations in dimension with the different numbers of cylinders are rather interesting. Of all the cars listed in the specification tables, eliminating chassis which are duplicates except for wheelbase variation, 34.6 per cent are fours, 51.7 per cent sixes, 10.2 per cent eights and 3.4 per cent are twelves.

The grand average dimensions are 3.93 x 4.94 in., giving a displacement of 269 cu. in. Splitting the engines up in order of cylinder number gives the results following:

Cylinder	Bore	Stroke	P.D.
4	3.6	4.95	221
6	3.46	5.00	282
8	3.13	4.59	282
12	2.87	4.96	386

It is curious that the average size of the six and eight should be the same, and probably this may be taken as meaning that the normal medium size car of to-day is best suited by an engine of this size. It is, perhaps, a little surprising that the fours average so high a displacement. Allowing for the fact that many of the fours have small wheels, this probably indicates that the

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displacement per mile run differs only a little as between the sixes, eights and fours.

The average engine is larger than it was a year ago, 269 cu. in. as compared with 222. The gear ratio has changed from 4.15 to 4.22, yet the increase in average tire size from 31 to 34 in. has prevented a large increase in the displacement per mile run on high gear. A year ago this averaged 384 cu. ft., and it now comes out 388 cu. ft. This means that ability as measured by displacement per unit of distance has not been increased. Probably there has been a little increase in mean effective pressure, especially among the newer sixes, but this will not have been great. On the whole, therefore, the ability ratio may be said to be unchanged.

There are more overhead valve engines by 2.2 per cent, and fewer L-head motors. Also there is a new type never before listed on stock cars, this being the horizontal valve. This is employed on the new Duesenberg stock engines, and this motor is used on 2.3 per cent of the listed chassis. The listed Knight engine chassis have doubled in proportion, increasing from 2 to 4 per cent.

Thus while the L-head motor remains the commonest type, it is apparently on the wane. Taking the years of 1915, 1916 and 1917, the L-head showed 70 per cent, 73.3 per cent and 73 per cent, while it has now dropped to 63.5 per cent, and a falling off of 10 per cent in a year of stagnation in design is significant.

There are no more adherents to the multi-valve idea sponsored by Stutz and White, but this is perhaps due to the paucity of new designs. It is a somewhat expensive design and most novelties are in the direction of cheapness rather than increased cost.

Unfortunately, figures for the proportion of detachable cylinder heads are not available, since there has without question been a large increase in its use. It is a long time since any new engine has appeared without this feature, and this year has seen Cadillac change over as well as Packard.

Ignition has followed the natural trend toward single current source, this being now the battery. Details have been improved in both batteries and breaker mechanisms, so the magneto shows no signs whatever of returning to its original position of universality despite its continued employment on many of the most expensive cars.

The automatic advance is developing slowly but surely, and both platinum and tungsten are so scarce and so much in demand for war purposes that every magneto and distributer maker has had his troubles in maintaining the supply of contact material. The established manufacturers have been able to keep up the quality fairly well, but with the return of peace a big increase in the life of contacts will be observed.

Engine balancing has been a continued study during 1917, and the day of the counterweighted crankshaft has arrived. There is a considerable difference of opinion as to how far it is really necessary to go in balancing, this subject being as yet only partly understood. The matter is discussed fully in another part of this issue. Still the 1918 show does mark the emergence of the counterweighted crankshaft from the peculiarity stage into the realm of conventionality.

In lubrication, circulating splash or combined splash and pressure systems have gained a great deal. In percentage the full pressure system has fallen off a trifle from 30 to 28 per cent, but this is due to decrease in models rather than to decrease in the number of believers in the system. In the tabulation the old style of separating splash-pressure and circulating splash (trough system) has been abandoned because of the many degrees of variation possible.

Some engines have practically a full pressure system plus dip troughs for the connecting rods, and some rely mainly on the troughs but use separate feeds to the main bearings. The real distinction comes now between those engines which have the troughs as an accessory or as the main lubrication source and those which rely entirely on pressure and have no dip for the connecting rods. Thus the two percentages given under "splash" and "splash-pressure" last year should be added together in comparing them with the total of 71.6 per cent for this year, and we then see an increase for this system of 1.6 per cent. There is only one car listed with plain splash lubrication that is dip for the connecting rods without troughs.

In pressure systems there are many variations. Last year it was anticipated that the 1918 tabulations would show a strong trend toward controls which would proportion the oil supply to the engine-bearing loads. This has not come to pass. Most of the pressure systems are low pressure systems; that is to say, the maximum shown in the gage with warm oil seldom exceeds 10 lbs. per square inch.

Probably the difference between splash-pressure systems and pure pressure ones has been exaggerated. The former is only different in that oil is supplied to the crankpins externally instead of internally. The pressure shown on the gage in a full pressure system is often higher than that prevailing actually between the crankpin and its connecting-rod bush; while oil supplied externally to a connecting rod is given some pressure by the relative reactions within the bearings.

Speaking broadly, the majority of manufacturers whose prices permit the drilling of the crankshaft prefer to supply the pins in this way, and most of those who prefer to use dip troughs do so because they give almost the same if not quite the same results when in combination with direct feeds to the main bearings. The leading advantage of the pressure system is that it gets the oil to the bearing surfaces quicker in cold weather, and most of the wear on bearings takes place during the first five minutes of running.

Average Price Increases $135
Wheelbases longer by 7½ in.
Piston Displacement Increases 47 cu. in.
Engines burn poorer fuel
L-Head Engine decreasing
More counterweighted crankshafts
More cars have wire wheels
Frames are deeper and stiffer

HAVING studied the changes in engines there is little remaining which shows variation worth recording. The three-speed gearset integral with the engine as a unit is found on three-quarters of the listed cars; the relative proportions of full and semi-floating axles remains about the same; there is nothing new in frames or springs. The spiral bevel is the predominant form of final drive, having increased from 70 to 79.4 per cent.

Wheels are larger, being now shod on the average with 34 x 4 in. tires instead of 31 x 4 in., a return to the conditions of January, 1915, which is a little surprising in the light of the popularity of the 32 by 4 in. tire. There are more wire wheels, these being now either standard or optional without extra charge on 27.8 per cent, leaving 72.2 on which only wood wheels are fitted. This is mainly a manufacturing matter, and if progress is normal during 1918 there will be more wire wheels to list in January of next year.

In springs 44.4 per cent of the listed chassis have semi-elliptic, 29.6 per cent cantilever and 17 per cent three-quarter, the remainder being divided between platform, transverse and special systems. Two cars, the Jackson and the Franklin, remain the only users of the elliptic system. Cadillac, Dorris and Peerless are the only cars using platform springs, Packard having changed to semi-elliptic. Hotchkiss drive is used on 53 per cent of American chassis.

Increase in wheelbase to an average of 120.7 is unexpected, since last year it had shrunk to 113. The present figure is almost the same as that prevailing the year before last. It means that the average body on 1918 cars will have perceptibly more leg room. Of course, a slight increase in wheelbase is to be expected at a time when we also see an increase in six-cylinder models, but a couple of extra cylinders on 5 per cent of American chassis is not enough to provoke more than a fraction of an inch on the wheelbase average.

(*Continued on page* 88)

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A Department of

BETTER MECHANICS

No. 49

Overhauling the Maxwell Engine

BY repeated tests the following method of overhauling the Maxwell engine has been found the most efficient and is the method developed and recommended by the Maxwell Service School in the Oakland avenue plant at Detroit. The tools for each operation are listed after the operation.

By S. T. Williams

THE following are the steps in sequence in removing the engine from the car:

1. Remove the dust shield—No. 23 wrench.

2. Remove headlight brackets from the fenders with the headlights attached—No. 24 and No. 26 wrenches.

Next, lay all the enameled parts in the tonneau. Remove the floor-board and disconnect the accelerator.

3. Remove radiator spring cups from the studs.

4. Remove the radiator hose and tie rods attached to the radiator. Use No. 966-D S-wrench.

5. Remove the front trunnion bearing (No. 966-D S-wrench and No. 27 wrench) and splash board (No. 23 wrench).

5a. Remove all wires from the generator and starting switch, first disconnecting the battery positive wire at battery (No. 965-D S and No. 24 wrench).

6. Disconnect the ignition wire from the coil.

7. Disconnect the gasoline line at the carbureter, choke wire and dash adjustment from carbureter. (No. 24 and small adjustable wrench.)

8. Drop right side of sod pan (No. 23 wrench).

9. Disconnect the speedometer cable at the dash and double down into the sod pan. (*Do not let the cable drag or lie on the floor.*)

10. Remove the muffler (No. 964-A wrench and No. 23 wrench) and leave the muffler on the running board bracket. If left on, the manifold may be broken when the engine is moved.

11. Remove the emergency brake and the foot brake pull rods from the gearbox (No. 23 wrench).

12. Remove the gearbox cover (965-D S-wrench). Cover the gearbox housing with a cardboard or metal cover.

13. Remove the engine support bolts. Use Stillson wrench.

14. Remove the spark plugs and insert an eye bolt in No. 3 spark plug hole. Use No. 33 wrench. Raise the engine from the car without taking off the clutch pedal, steering gear or raising body. Do not remove universal housing. (See Fig. 1.)

Dismantling the Engine

1. Remove the oil from the crankcase and flywheel or clutch housing while the engine is hanging on the chain. Do not remove the grease from the gearbox. Use No. 23 adjustable wrench.

2. Remove the oil pan. (No. 964-D S-wrench.)

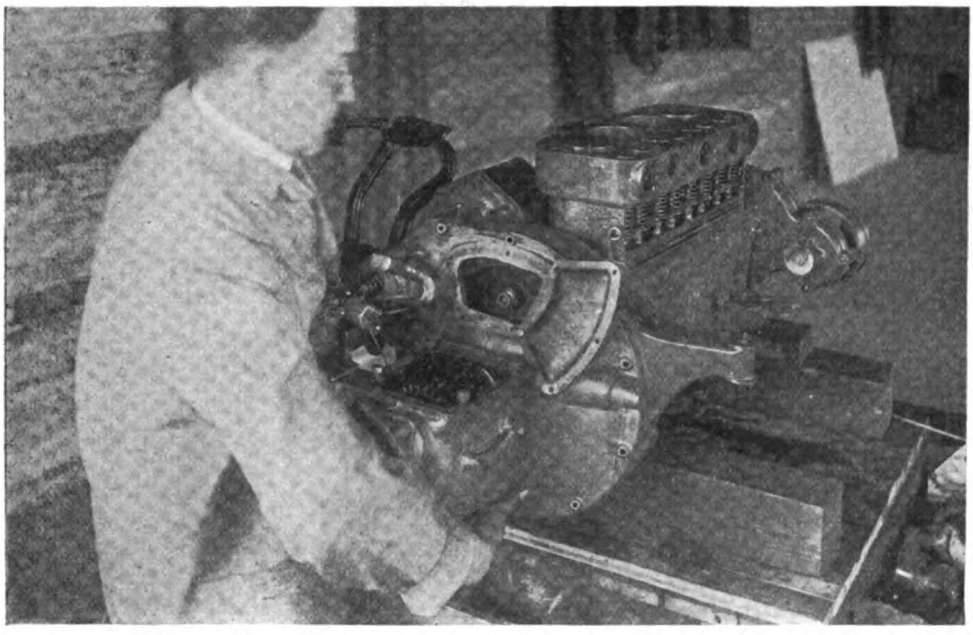
3. Place the engine on the stand. (A strong box with casters may be used.) *Use blocking in order to prevent injury to oil pump.*

4. Remove the fan belt, and fan pulley, removing set screw and key.



Fig. 1—In removing the engine from the frame an eye is inserted in No. 3 spark plug hole and the engine removed without taking off the clutch pedal, steering gear, or raising the body. Even the universal housing is not removed

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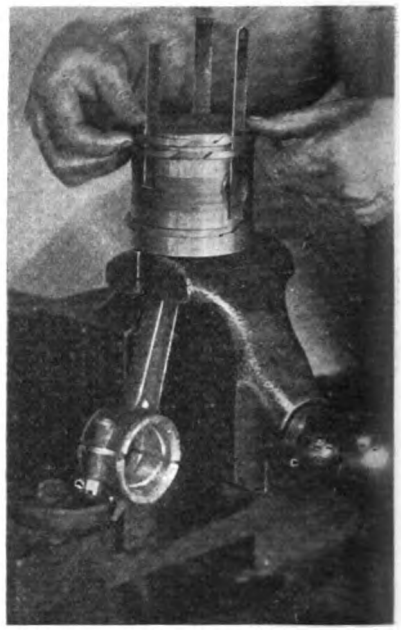


Fig. 2—The gearbox is removed from the engine in the above manner. Care should be taken not to damage the pilot roller bearing or lose the thrust washer. Fig. 3—Care must be taken in piston ring work lest the rings be broken. By inserting hack saw blades behind the rings they may be removed quickly and without the possibility of injury

5. Remove the cylinder head with the fan attached. (No. 967-A S-wrench.) Do not damage the gasket. Place the cylinder head in a protected position so that the fan and spring will not be damaged.

6. Remove the generator shaft coupling from the generator (No. 23 wrench and No. 22 wrench). *This step saves time later.*

7. Remove the intake, exhaust and water manifolds, oil filler, gage and gear housing cover. (No. 965-D S and No. 964-A S-wrenches.)

8. Remove the valves and lay them away *so that the valve seats will not be damaged.* Use a valve lifter to compress the spring and remove the spring pan. *Valves are numbered front to rear, one to eight consecutively.*

9. Remove the flywheel housing cover. (Use small adjustable wrench or B. & S. No. 725 wrench.)

10. Remove the clutch spider spring, stud nuts and springs. (No. 967-D S-wrench or No. 29 wrench.)

11. Before removing flywheel housing inspect the pocket gear for end play. This should not be more than 1/32 in. or less than 1/64 in. Endplay in the pocket gear will cause damage in the pocket gear and high speed gear connection, causing the gears to fly out of high speed. The only remedy is replacement of the gears and taking of endplay by adding to the thickness of the thrust washers.

11a. Remove the gearbox case from the flywheel housing studs. (No. 964-A S-wrench.)

12. Pull the gearbox from the engine. Push clutch pedal in. Be careful not to damage the pilot roller bearing, or lose the thrust washer. (See Fig. 2.)

13. Turn the motor upside down on stand or box. *Roll toward the distributer side to prevent injury to the generator.*

14. Remove the clutch spider, wire retainer and spider bearings.

15. Remove the clutch spider bearings

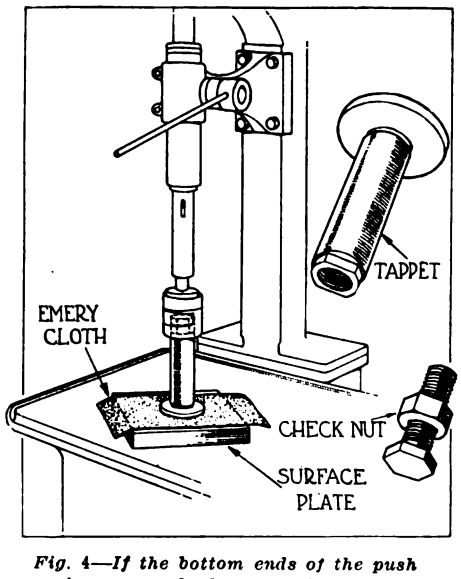


Fig. 4—If the bottom ends of the push rods are rough they may be reground in a drill press on a piece of emery paper

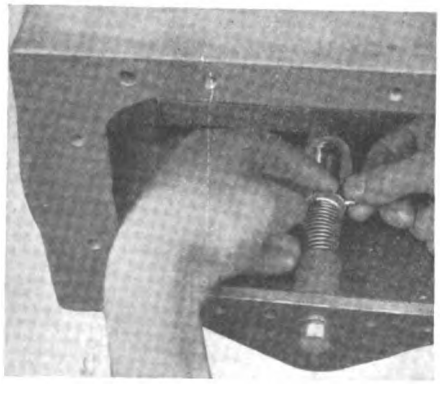


Fig. 5—The oil pump plunger is removed through the bottom of the bore after the spring has been compressed and the pin removed. The plunger should be smooth

support and flywheel. (No. 965-D S-wrench.)

16. Remove the flywheel housing with the generator attached. (No. 965-D S-wrench.) Save the gasket between the housing and cylinder block.

17. Remove the starting crank set screw and pin. Replace the screws so they may not be lost.

18. Remove the main gear set screw wire retainer and screw. Note the pointed screw in end of the crankshaft to hold the pin. The screw with a doweled end is used inside of a shaft to hold the gear.

19. Inspect the shaft for endplay.

20. Remove the cam gear nut using a Stillson wrench. Remove the cam gear with a puller. Be sure there is no endplay in the camshaft. Endplay may be caused by the bushing being too loose in the block. To remedy this, replace sleeve and bushing, then with the cam gear replaced on the shaft there should be no endplay between the bushing and the shoulder on the shaft and the thrust washer on the back of the gear.

21. Remove the main gear with a puller. *Place a nut between the end of the shaft and the puller to protect the crank pin set screw thread.* Remove the key to the shaft.

22. Remove the connecting rod cap, replace shims and nuts on the connecting rod bolts attached to the connecting rods. Remove the connecting rod and pistons. (No. 965-D S-wrench.) See that the pistons fit properly in the bore and note the fit of the connecting rods on the crankshaft.

23. Remove the piston rings. Use hack saw blades as shown in Fig. 3. Clean the carbon out of the ring grooves and inspect the wrist pins and bushings. Replace the worn parts and assemble the piston rings and connecting rods to the piston. (No. 965-D S-wrench.) The rings should fit the bore tight on a .003

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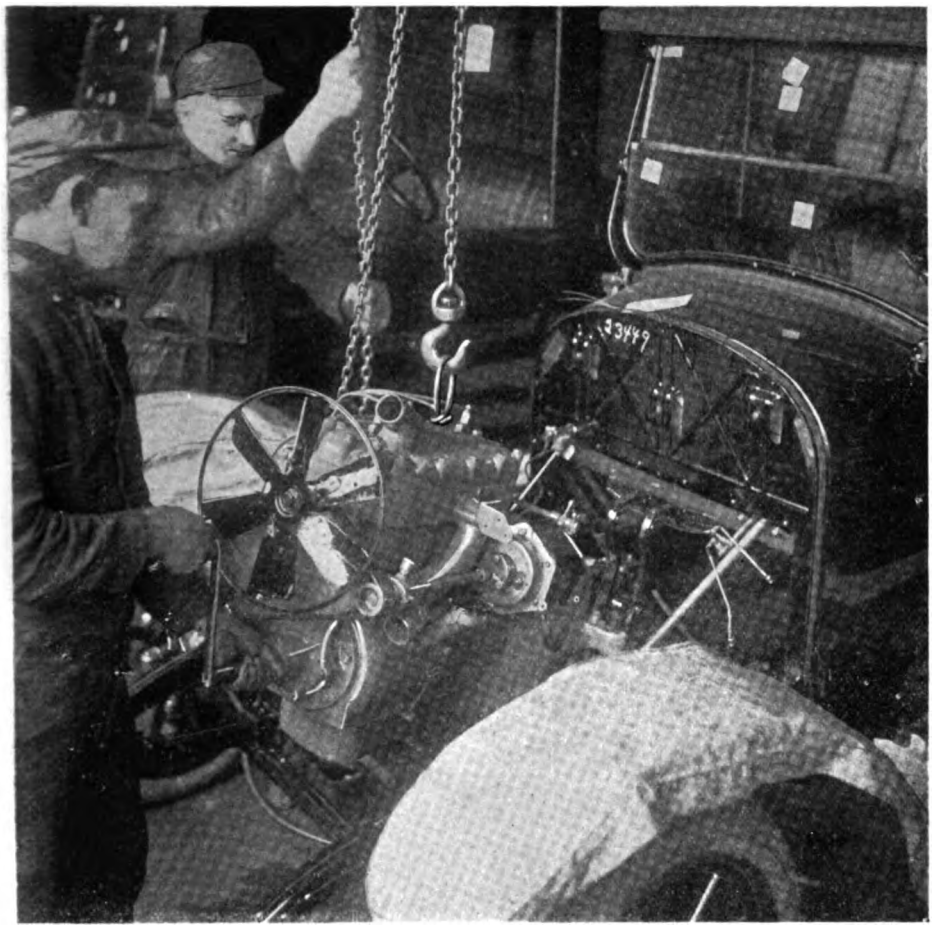


Fig. 6—After assembly the engine is replaced in the frame. Note the canvas covering over the mud guards. These are essential to clean workmanship

in. feeler and loose on a .002 in. feeler gage. Pistons should fit bore in the same manner. The top piston ring *should have a slight up and down motion on the piston, for the purpose of allowing for heat expansion.*

24. Remove gear housing and the front bearing. (No. 965-D S-wrench.)

25. Remove the crankshaft with the rear bearing attached. Inspect the rear bearing for endplay. The maximum endplay allowed is .004 in.

26. Remove the rear bearing and refit it loose enough to permit the flywheel to be turned by one hand without the aid of a lever or pry, and with no endplay.

27. Remove the camshaft with the front bearing attached. Leave the rear bearing in the block.

28. Remove the push rods and examine the bottom end. If rough either regrind or replace, or polish by revolving in a drill-press or lathe, using emery paper on the surface plate, as shown in Fig. 4. Examine the push rod adjusting screw. If the top is found to be worn, replace or regrind. Be sure that the push rods fit properly in the block, without side motion. Sloppy push rods waste oil and are noisy and the remedy is to replace new push rods.

Removing the Oil Pump

29. Remove the studs holding the bottom portion to the block, also the screws holding the piping to the block. Be careful not to damage the gasket between the block and the pump. (Flour sack paper makes good gaskets.) Pipes may be removed and ball check valve and retainers examined. To remove the plunger from the block, hold it at the highest point by inserting the punch in the bore. Compress the spring and pin retainer. Remove the pin and shove the plunger out through the bottom of the bore, as shown in Fig. 5. Examine the bore and the plunger. If the plunger is rough, smooth it with emery paper or cloth and re-assemble.

All of the points in overhauling and inspecting the engine are included in the above. The assembly is the reverse of the twenty-nine operations given. One point to observe is the markings on the timing gear, shown in Fig. 8. The ignition diagram is shown in Fig. 9. The engine is replaced in the frame after assembly, as shown in Fig. 6.

Standard Repair Time.

THE schedule herewith shows the standard time required for doing the various parts of the work outlined above. By multiplying the time required by the labor change per hour, a standard charge list may be secured for any shop.

CAMSHAFT

	Hours
Change cam gear	4
Change camshaft	18
Change cam bearings	18
Cam timing	4

GEAR CASE

Replace timing gears	6
Change gear case cover	3½
Replace gear case gasket	3½
Change crank gear	4
Replace magneto shaft bushings	5½
Install felt washer between gear case and block	6½

CRANKSHAFT

Change crankshaft	40
Replace rear main bearings	30
Take up bearings	30

CONNECTING RODS

Replace one rod	6
Replace four rods	16
Take up bearings	5

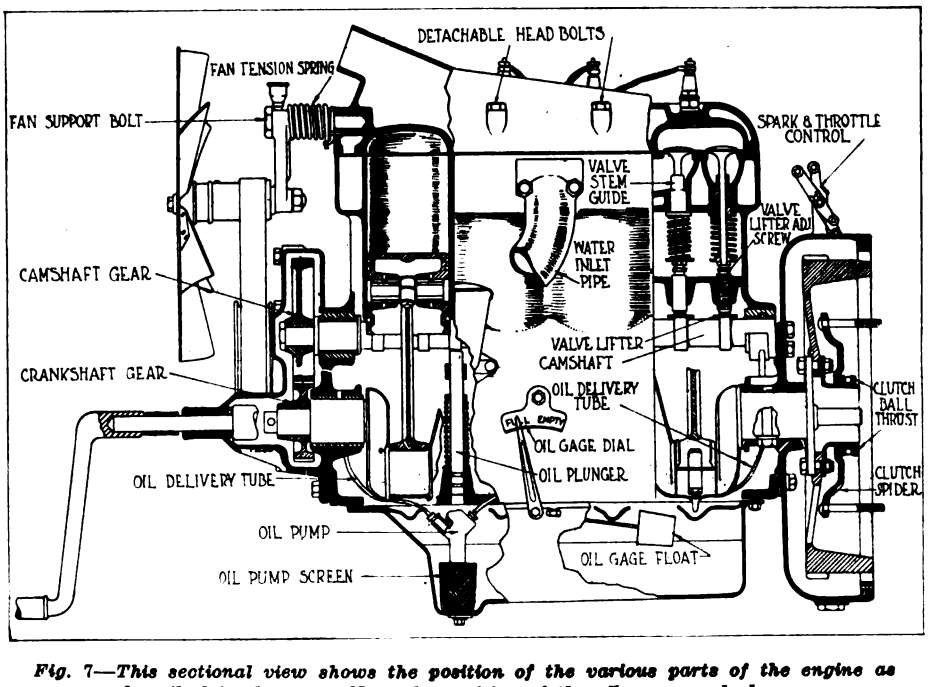


Fig. 7—This sectional view shows the position of the various parts of the engine as described in the text. Note the position of the oil pump and plunger

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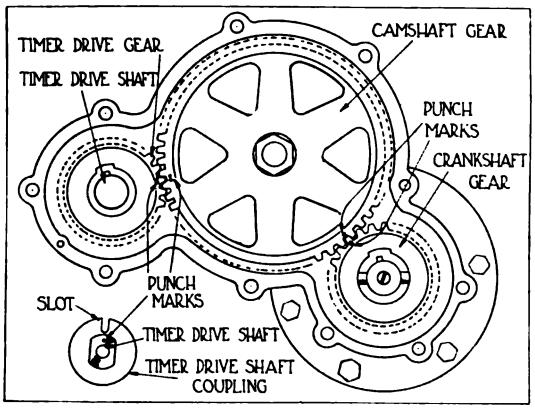


Fig. 8—By mating the punch marks on the timing gears according to this diagram, correct timing is automatically secured. The small insert shows the correct position of the timer drive shaft coupling

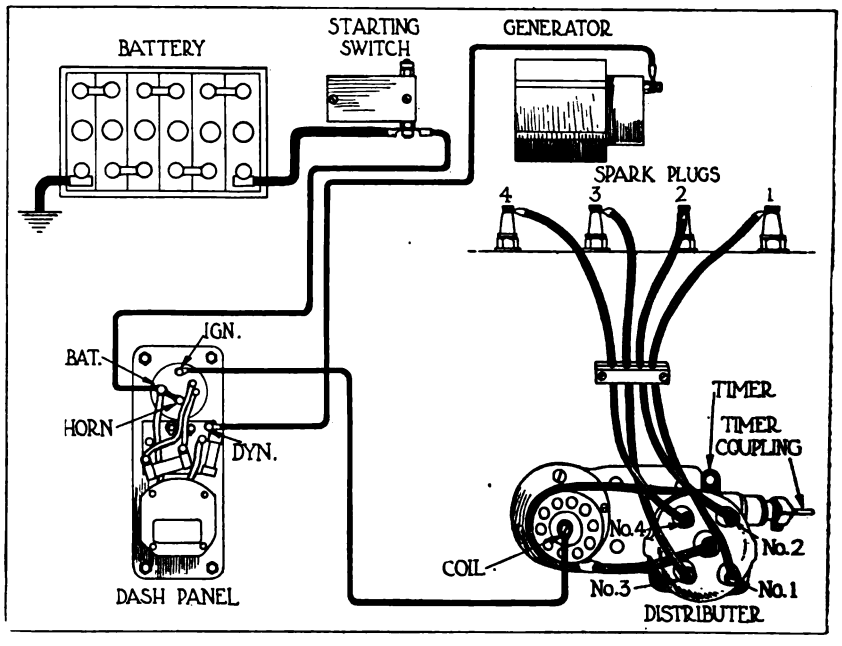
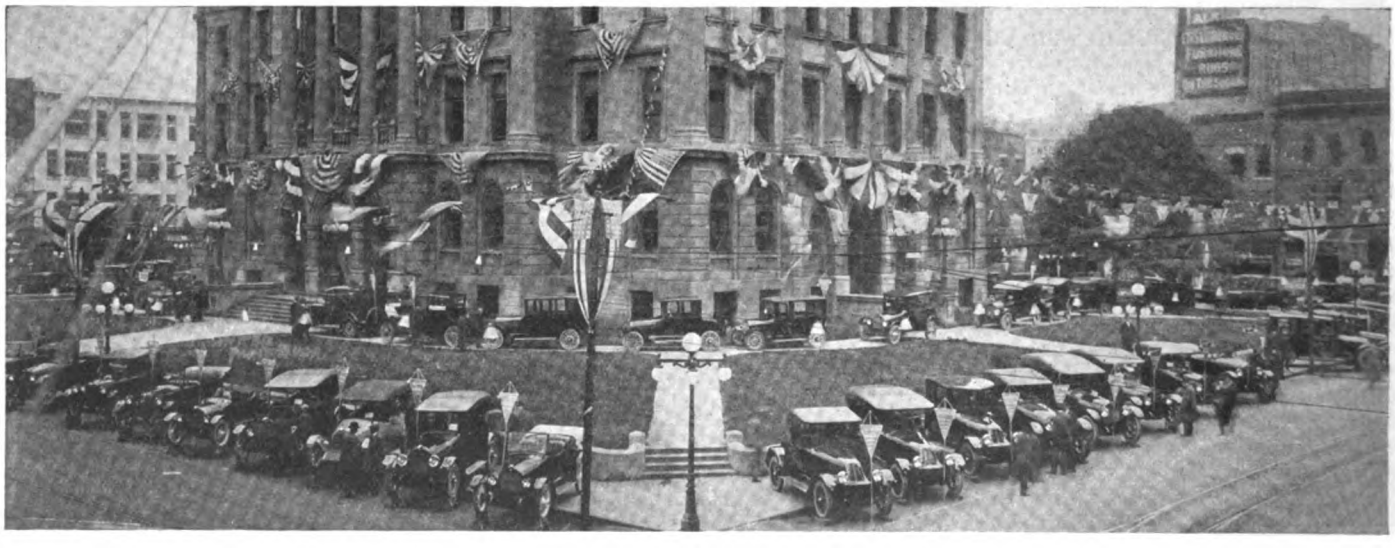


Fig. 9—The wiring should be replaced according to this diagram after the engine has been assembled

CYLINDER BLOCK	Hours
Change cylinder block	45
Repair scored cylinder	6 to 15
Scrape carbon off block and head	2½
Fit pistons and rings	10
Replace push rods	18
Replace four valve guides	8
Replace one broken valve spring	1½
Grind valves	6
ENGINE	
Tune engine	1½
Change engine	7
Retime engine	1
Overhaul engine	40
Adjust tappets	1
CYLINDER HEAD	
Change cylinder head	2
Change cylinder head gasket	2
EXHAUST	
Change manifold	1½
Change manifold gasket	1½
CARBURETER	
Adjust carbureter	½
Change carbureter	1½
Install new gasket	1¼
Overcome flooding	1½
Stop air leak	1½
FAN	
Change fan belt	¼
Change fan	1
Replace fan bearings	1½
Replace fan spring	1
MAGNETO	
Change magneto	1
Repair magnet (average)	2½
Clean and repair brushes	1
Repair stuck breaker	1½
FLYWHEEL	
Change flywheel	6
OIL PAN	
Change oil pan	2
OIL PUMP	
Repair sticky pump	4
SPARK PLUGS	
Change four	½
Clean and adjust four	1
GENERATOR	
Install new generator	2
Overhaul and clean generator	5
Install new brush ring	4½
Change generator coupling pan	1
Repair armature striking pole shoes	5
Install generator drive shaft bearing	2
GEARBOX	
Install new pocket gear	4½
Install starter shifter fork	5
Install new gearbox	4
Change countershaft	8
Install new High and Intermediate sliding gear	4½
Install new pocket gear roller bearing	6½
Take endplay out of pocket gear	4



A NOVELTY in the way of an outdoor display of motor cars was conducted by the Bloomington Automobile Trade Association recently.

Permission was given by the board of supervisors to display the cars on the sidewalk around the court house square, and eighty were thus shown. Space was divided among the twenty dealers, and was assigned by lot, a drawing taking place which gave every entrant a chance in securing choice locations. The court house and business buildings of the vicinity were decorated with flags and bunting, a band gave concerts daily and many thousand people viewed the spectacle.

The dealers in numerous instances were able to display 1918 models and a large number of sales were traced directly to the outdoor show. Many persons were attracted who would not have paid admission to an indoor show, and the fall business, especially among enclosed cars, was given a noticeable impetus.

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Editorial Observation

Get the Price

FOR years price-cutting has been a disease in the motor car trade. Many businesses have been so badly afflicted that they have died.

One complaint of dealers has been that they couldn't stop price-cutting because everybody else cut. While this was disproved time and again by dealers who did stop and did not lose business, the prevalence of the practice certainly made it hard for a price-cutting or long-trading dealer to stop.

Even if all those things are still true to-day the time has come when price-cutting MUST STOP.

A paramount reason why it must stop is that the dealer cannot afford to throw his profits away this year. There will not be a superfluity of cars. The demand will regulate the supply. War will have its effect, not through any curtailment by the government, but because the demand will be less. Production will take care of its own curtailment.

Each time a dealer's sales are decreased by one car his profit per car becomes less. A large eastern dealer tells MOTOR WORLD he must sell a car a day to make expenses. Unless he gets his full profit on that car a day he makes less than his expenses.

Also, expenses are higher. This means that each car sale pays a smaller profit. If the profit is thrown away by giving it to the customer the expense becomes still greater.

The Way of the Dealer Hard Enough

It is hard enough for a dealer to get along these days without his way being made harder by himself.

Furthermore, this is an ideal time for each dealer to make a change to no-cut-prices if he has been throwing away his profits. The buying public is accustomed to changes. It has stood for increases in the price of goods of all kinds, it is paying numerous war taxes, it is getting along without as much sugar as it used to enjoy, it is forced to alter its mind and habits at every turn. Why not, then, let it make this additional change?

The dealer who goes on a cash basis has little difficulty "getting away with it." Hundreds have done it and hundreds more will have to do it. The difficulty of the cut-price is just as easy of solution.

Let it also be added that the dealer who hasn't the backbone to stiffen up and GET THE PRICE is marking himself as one of the non-essentials of business. He is headed toward the exit sign faster than ever before.

One more point: Dealers often talk of getting longer discounts from factories on cars. They maintain that 20 and 25 per cent are not enough. They state that no good dealer nets much more than 4 per cent on the gross. Assuredly a longer discount would alter this situation, and some day it may come, but let's cite an experience of this week in the MOTOR WORLD office, whither a manufacturer came for advice.

A truck manufacturer wished to sign up with a certain good dealer. The dealer said he did not think the 25 per cent discount was enough. The manufacturer said it didn't make any difference what the discount might be, for the general run of dealers threw it away in cut prices—and to a considerable extent the manufacturer is right, although not as right as he was several years ago.

Remember what happened in tires. The discounts were nice and fat. The dealers threw them away. The manufacturers cut the discounts until the dealer practically had to get the list or quit selling tires.

Cut Price Indication of Unhealthy Condition

Maybe this attitude is wrong, but here is one thing that is right: An industry whose product is hawked all over the world at cut prices is exceedingly unhealthy from top to bottom. It lacks stability and reliability, and the merchandisers who should be its foundation stones are in a very crumbly condition.

It isn't fair for any dealer to ask a manufacturer to make good the dealer's trading losses and lack of backbone. Not until the trade can fight off the disease which it has brought upon itself is it justified in suggesting that it merits help from others.

There are many things other than the immediate clink of money in the cash drawer that depend upon getting the price. And getting the price applies to straight sales, trades, unusual free service and other things. Each sale should stand on its own feet and net its own profit.

This is a period of adjustment. Everybody's doing it. While everything is turning this way and that way and radical changes don't attract much attention let's put our own house in order.

Then when peace comes we'll be all set. Start now. GET THE PRICE!

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Winter Business

Are We Down-Hearted?

Do These 9 Things

Make Money This Winter

IN order to make money this winter each dealer and garageman must outline his work. He may be sold ever so strongly on the Winter Business idea, but he will not get Winter Profits unless he lays out certain steps and then carries them through. On these pages are certain suggestions. For each suggestion on this page there is a letter on the opposite page. When you take step No. 1 send out Letter No. 1. When you take step No. 4 send out Letter No. 4. Read these suggestions and then ACT.

1—Get Cash. Put your business on a cash basis. There are many reasons why you should do this. The biggest reason is that it will make your condition safer and your profits more sure and greater. Send Letter No. 1.

2—Get Repairs. Your shop can be kept busy. Many cars MUST be repaired in the spring. Get them in NOW. Send Letter No. 2.

3—Sell Used Cars. Many who were going to buy new cars this spring have changed their minds. They are good prospects for used cars. Fix up your used car stock. Make it ready for sale. Send Letter No. 3.

4—Sell Accessories. Motorists need accessories this winter more than ever before. They need heaters, robes, chains and other necessities. Also, those who are driving the old car another year must have certain accessories. Send Letter No. 4.

5—Do Repainting. Old cars always need fixing up. Especially is this true this winter when many cars will be driven another year. If you haven't a paint shop open one or contract with a painter. Send Letter No. 5.

6—Do Retrimming. Upholstery goes fast on many cars. In some cases slip covers are the best kind of upholstery. They add to the car's appearance and are cheaper to renew than upholstery. Send Letter No. 6.

7—Get Ford Repairing. Even if you are not the Ford dealer make a bid for Ford repairing. If you have a well equipped shop and can handle the work in good shape the business will be profitable. Send Letter No. 7.

8—Do Vulcanizing. If you haven't a good tire shop get one or else make a contract with a good vulcanizer. Sometimes it is as cheap to have the work done outside. Send Letter No. 8.

9—Loosen the Public's Money. On a hysteria basis many people have set up false ideas of economy. Eventually they will get over it. Help them along. They believe that in times of stress like these no money should be spent. They are all wrong. We should all spend all we can. Money in circulation creates wealth and the creation of wealth is essential to winning the war. Send Letter No. 9.

A GOOD WAY to do these letters is to have a letter printer print them on your stationery. But if your office workers have time to spare the job will, of course, be better. If you do them yourself have them filled in with the prospect's name. But if the printer does them and you can't make a good fill-in job not much is gained by filling in. And—when one of these letters brings in a customer try him on all the other eight sales ideas on this page. If he comes in for painting, try to sell him trimming and repairing, etc. Cash in to the full on every opportunity.

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1—Cash Letter

You are interested, we are sure, in a meeting of representatives of our trade with the government's Commercial Economy Board in Washington. This meeting was held to see if it isn't possible for us to decrease the expense of doing business. All dealers are urged to effect economies wherever possible. These economies will enable us to continue as near as possible the old prices.

An investigation of our business shows that one of our expenses is carrying accounts. These are a convenience of business, but, like many other things, they cost money and we could go along just as well without them once we changed over to a different plan.

We are therefore asking all our patrons to assist us in putting into effect a plan of payment at the time goods are purchased. If we can do this we shall be able to cut that part of our overhead expense which it caused by this extra bookkeeping. It really is more than one imagines until an investigation is made.

This is one of the economies that is spreading rapidly in the business world and we are sure you will co-operate in helping us better business in this way.

2—Repair Letter

When spring comes you will need your car.

The first thing you know the warm days will be here. The birds will be back. The roads will be dry. The country will beckon as it beckoned to you last spring. When that time comes you're going to roll the car out and "see how she runs."

Won't it be a satisfaction to KNOW before you take it out that it is going to run all right—without knocks or rattles, with clean cylinders and tight brakes, and tip-top in every detail?

At present there are many days when you may not use the car and we have not the rush of work in our shop that we had last summer and shall have when the sun warms things up next spring. When that rush comes we may have difficulty doing things as fast as you would like to have them done.

Our suggestion is that you bring the car in and let us inspect it. Then we can better talk about what needs to be done and when we both can best work in the time for doing it. There is nothing like preparedness. It's cheaper.

3—Used Car Letter

These are days when we want to make every dollar go the limit, aren't they?

When we buy a car we want to know we are paying as little as we can pay and still get something that will give us satisfaction. If it doesn't give satisfaction it isn't good value at any price.

There are many used cars that will give you satisfaction and still will cost much less than you would have to pay for a new car. We suggest that you investigate this situation.

We now have on hand several used cars, some overhauled and some not. Those that are not yet overhauled will be handled in whatever way the purchaser desires. We have a Buick touring car at $—— that we believe you would like and also others such as Studebakers, Dodges and other well-known makes.

It will be a pleasure for us to show you through our used car department. This is one occasion when you can decide exactly what you want and then find it at very close to your own price.

Come in any day between 8 a. m. and 6 p. m.

4—Accessory Letter

Rather cold these days, isn't it?

Nips one's toes a bit, doesn't it, to ride very long in a car, even if it is an enclosed car?

And don't your fingers get cold?

Do you know that you can be as comfortable in winter as in summer? And that winter motoring is one of the most healthful occupations? And that the time a car saves in winter is considerable because walking and street cars are made so slow?

For instance: A Perfection heater will warm your car. A warm hand wheel will keep your hands warm. A fur cap will keep your ears and face warm. A robe will keep your body warm.

Getting fixed up for winter is a simple and inexpensive matter and the car that is once equipped with these things is never permitted to be without them. Furthermore, it runs all winter and continues to give service.

Come in and see the many winter things we have.

5—Do Repainting

There are two ways of getting a new car next spring.

One way is to buy a new one. The other way is to have the old car made new. And, really, it is hard to tell a refinished car from a brand new car when you see them out on the road.

Can't you imagine what a coat of paint will do to a car that has seen a summer's hard driving? And have you any idea how little it costs?

Many people think that because the appearance is made so much better the cost must be proportionately big—but it isn't. You will be surprised when you learn what it will cost to repaint your car.

Also, you can have the color changed. If you have been driving a black car you can have it made blue, or yellow, or red, or gray—any color.

Why not drive your car in and ask our painter what he can do toward making your car into something that you'll never believe is the old car after the job is done? He'll tell you the price beforehand, too.

Come in any time.

6—Retrimming Letter

Any car that is driven very much wears out inside the body. Many people think that wear comes only in the motor and other mechanical parts—but upholstery wears out about as quickly as anything.

Furthermore there is just as much science and skill in fixing up the inside of a car as there is in fixing the machinery—and we have that skill.

One of the most satisfactory methods of making the inside of a car new is fitting slip covers. These can be furnished in various shades and colors and make the car look as though it had been re-upholstered—the latter being a costly job.

These slip covers serve three purposes: They protect the upholstery, they protect one's clothing because the covers can be changed and easily cleaned, and they add to the appearance of the car.

They are just as serviceable on a new car as on an old car because they prevent the new and shining upholstery from wearing out. They are a war-time economy.

Come in and ask for our estimate on fitting your car.

7—Ford Repair Letter

A Ford car is desirable for two reasons: It does anything you want it to do and doesn't cost much to buy or to run.

Most people enjoy their Fords so much that they give them very hard service. There is more Ford driving in this country than any other kind.

If you are to enjoy your car next summer you should be sure it is in tip-top condition when spring comes. Otherwise the warm days of spring will entice you out onto the roads and the first thing you know you'll be so busy driving you won't have time to get anything fixed.

Last summer's driving must have made necessary a few little fixings. Maybe the motor right now eats too much gasoline and is noisy. Maybe the car rattles. Maybe it needs a lot of things that only a careful inspection would reveal.

We shall be glad to inspect it without charge. Then, we shall be pleased to talk with you about taking advantage of the skilled men and capable equipment in our establishment.

Come in and ask for an inspection and estimate.

8—Vulcanizing Letter

What are you doing as a war-time economy?

Have you helped save the wheat? And the sugar? And the meat? And have you searched for ways in which you could get more for your money?

Here is one way: Get the little cuts in your tires fixed. Don't let them go until they become costly repairs.

A little cut lets in dirt. The dirt wears a hole in the tire. The water gets in and rots the fabric. And then bang goes the tire and it is a case of a good repair bill or a brand new tire.

Fixing the little cuts costs little. Repairing blow-outs is not so inexpensive.

If you will ask our tire man to look at your tires he will tell you what needs to be fixed and how much it will cost, and he will be glad to help you avoid giving him a bigger job later on. We must all avoid wastefulness.

Drop in. The inspection will take but a few minutes.

9—Business Accelerator

Isn't it strange how this war affects all of us?

We are heart and soul in the business of cleaning up this nasty mess in Europe—and we're going to do it—but the war has given some of us different ideas.

For instance: One of our men said the other day that he didn't believe he should spend much money for Christmas gifts. He didn't know exactly why, but he simply thought he ought not to do it. He had the money but didn't think he ought to spend it.

Another man asked him what would happen to this country if everybody quit spending money. If people—who nave the money to spend—don't buy goods how can the stores run? If the stores don't run how can the factories run? If the factories don't run where will their employees get money? If the employees don't get any money at all, don't you see that there then will be a mighty good reason for not spending?

As money circulates it creates wealth—and wealth we must have if the war is to be won. Don't you think it is every man's duty to help keep money on this wealth-creating circuit?

We should like your opinion.

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What Car Makers Have Done During 1917

THIS is essentially a review of progress. During the year gone by, car manufacturers have made certain improvements in existing models and some have brought out entirely new designs. On these pages, such improvements are pointed out and new models are briefly described.

ABBOTT

The Abbott Corp., Cleveland, O.

No changes made.

ALLEN

The Allen Motor Car Co., Fostoria, O.

The four-passenger roadster selling at $1,095 is entirely new. It marks a change in body design whereby the streamline effect has been increased and accentuated by a slanting windshield. The rear seat has been made 4 in. wider and comfort is still further increased by the use of double deck cushion springs. The engine has been bettered by using a crankshaft of heavier construction. The piston and connecting rods have been made lighter, and the rods are longer, reducing the wear effect on the pistons. Among the new specifications are: Auto-Lite two-unit starting and lighting system; Connecticut automatic ignition; Perfex honeycomb radiator; Borg & Beck dry disk clutch, and Hotchkiss drive rear axle through a hollow propeller shaft having two universal joints; the gear ratio has also been increased; full crowned fenders and a mud splash guard below the radiator.

Among the changes that have increased the sales value of the cars is the consolidation of the entire electrical controlled system on the steering column. The upholstering is now extra deep and soft, with blind nail welt, and the main spring leaves are vanadium steel. While the improvements on the Allen are more in favor of the owner rather than the repairman, increased life of the tires due to the improved drive and freedom from oiling trouble due to engine changes benefit both. The oil filler has been rendered more accessible and the addition of a gasoline gage to the tank, piped upholstery, hand pads on the doors and mud splash pan under the radiator, increase the ease of maintenance.

AMERICAN

American Motors Co., New York City

This car will be known as the American, the word six being dropped from its title. A new motor will shortly be adopted and there is a new steering gear which has provision for adjustment to take up wear. Bodies now comprise a seven-passenger, a five-passenger and a speedster with a single seat wide enough for three. The equipment has been improved, such things as a tonneau light, tool compartments and a locker in the back of the front seat having been added.

APPERSON

Apperson Bros. Automobile Co., Kokomo, Ind.

Most of the changes in the Apperson line constitute body refinements. The company has not found it necessary to make any radical changes as the engine and chassis are the outcome of a steady evolution since 1893. The Apperson company has always given special attention to the balance of reciprocating parts and the present crankshaft is counter-balanced. Self-lubricating bushings have been installed on the spring eyes. Hotchkiss drive is retained, with springs hung under the axle on specially designed hangers.

BREWSTER

Brewster & Co., New York

No mechanical changes. Have a new design of inclosed drive body which is unusually light.

BRISCOE

Briscoe Motor Corp., Jackson, Mich.

No changes made.

BUICK

Buick Motor Co., Flint, Mich.

There are no changes in the Buick line, except the addition of a four-door sedan, styled the model 47. This is mounted on the present model 45 chassis.

CADILLAC

The Cadillac Motor Car Co., Detroit.

Adhering to the eight-cylinder V-type engine first introduced three years ago, the new Cadillac models incorporate only further refinements. The most important change is in the use of detachable cylinder heads. These are secured to the cylinder blocks by 20 nuts each and are made gas and water tight by special copper-asbestos gaskets. These permit easy access to the valves and pistons without removing the cylinder blocks and greatly facilitating removal of carbon deposits. In addition, they permit greater accuracy in manufacture without sacrificing compactness.

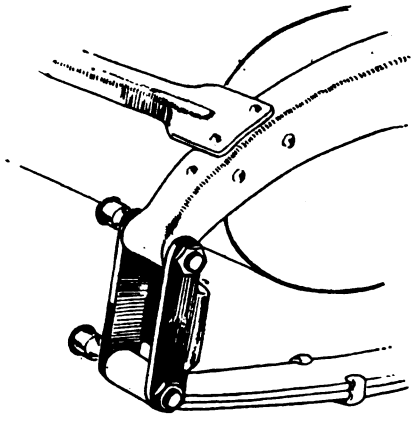
Another feature is the tilting headlamp reflector. This eliminates glare by lowering the direction of light and is operated by a small lever attached to the steering post.

The gearbox has been made more compact and lighter. A bottom housing plate is provided in addition to the top cover plate and the countershaft may be removed through the bottom cover without disturbing any other part.

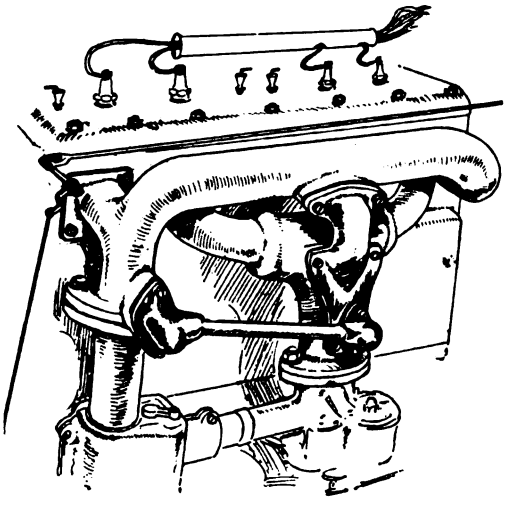
A distinctive feature of the cooling system is a condensing device connected to the radiator overflow pipe. It comprises a small condenser attached to the frame which facilitates the use of alcohol as anti-freeze. The alcohol vapor together with some water vapor is driven into this condenser and condensed. When the radiator cools the vacuum produced by the contraction of its contents automatically draws the surplus liquid in the condenser under atmospheric pressure to the radiator.

Changes apparent in exterior design include a raising of the radiator and hood. The latter is also 2 in. longer and a new cowl, square doors and increased legroom in the driving compartment better both appearance and comfort. Two new models are being marketed, the type 57 two-passenger car and the type 57 four-passenger car. The two-passenger is a sport roadster having a cowl that forms a straight line from the radiator cap to the windshield. The four-passenger likewise has these same straight

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On the Oakland there is a new one-piece spring shackle



On the Hupmobile there is a preheater to help vaporize poor fuel

lines, and is lower than previous models. Plain unbeaded doors and hood help to increase the racy appearance. Both models have the new hoods with 25 louvres. Cadillac blue, which was used on type 55 open cars, is standard finish on the new open cars, while Calumet green with black trimmings is standard on enclosed cars.

CASE

J. I. Case T. M. Co.,
Racine, Wis.

Quite a change has been made in the Case line. Two cylinders have been added, 5 in. to the wheelbase, larger tires are fitted and roomier and more modern bodies are supplied. The new car is some 400 lbs. lighter than the smaller 1917 model. The company no longer makes its own engines, for a Continental six replaces the old four. Cantilever springs have been replaced by underslung semi-elliptics in the rear. There are numerous refinements like Stewart tire-pump, anti-squeak bushings in springs, spiral bevel, final drive, etc.

In the body the radiator is higher and there is a straight, smooth slope to the cowl. The whole front is flatter and at the same time more graceful. The top of the body line from cowl to rear seat is horizontal and the whole design gives a conception of speed and comfort, which is further enhanced by the decidedly sloping, folding windshield. Mahogany panelling is used in the cowl board and rear of front seat.

CHALMERS

Chalmers Motor Co.,
Detroit.

The most marked improvement is in the intake manifold design, styled "ram's-horn" construction. It is constructed of simple piping, is exterior to the engine, and so formed that it carries the gas from the carbureter to a hot spot in the side of the exhaust manifold wall, and thence through gradual curves to the intake valves. The elimination of sharp curves in the manifold prevents the deposition of raw gas and reduces friction. It is the hot spot, however, that imparts heat to the mixture, benefiting vaporization. This hot spot is at the top of the carbureter riser, so that the gas is forced to come into contact with it, the hot spot being a thin plate partition dividing the exhaust from the intake manifold and receiving its heat from the exhaust gas. A rounding out of the line has also taken place, which now includes 10 body styles.

CHANDLER

Chandler Motor Car Co.,
Cleveland

There are no radical changes. The engine is 3½ x 5 in., of L-head construction, with the cylinders cast in two blocks. The valves are inclosed, and the camshaft is driven by a silent chain, as are the pump and magneto shaft. In the construction, pressed steel and aluminum are used as much as possible to decrease the weight, the crank case being an aluminum casting. This case extends outward to the frame sides, and not only insures rigidity of the engine mounting, but also removes the necessity of sheet metal filling plates or pans. The oil pump is driven by the camshaft, and can be quickly removed for inspection or cleaning, and the oil is pumped directly through leads to every working part.

The touring car, roadster, sedan, coupe and limousine are continued from the past season, and to these is added a 4-passenger sport model. The new sport body is mounted upon the regular chassis, except that it is fitted with 32-in. wheels and has a gear ratio of 3.78 to 1. The body lines are exceptionally good, the hood being high and provided with narrow louvres and joining the cowl and body without a break in the smooth line. The top line of the body edge is noticeably lower than the top of the hood, and the windshield has a marked tilt. The present production plans specify Copenhagen blue finish for the sport model body, hood and radiator, with chassis and fenders black. This model lists for $1,675, and five white wire wheels may be had for $110 extra.

CHEVROLET

Chevrolet Motor Co.,
New York

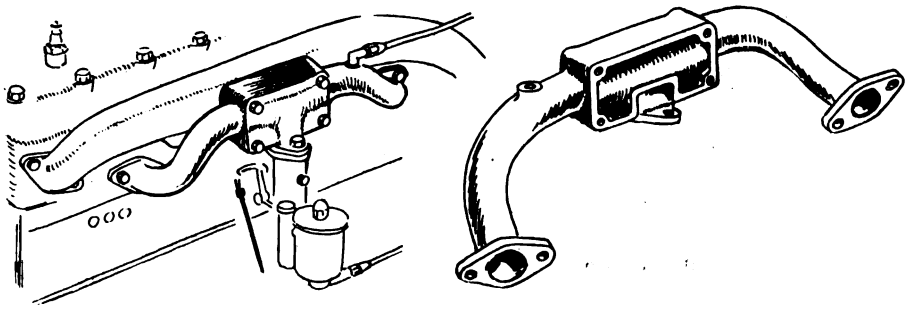
Although the eight-cylinder chassis of this concern was exhibited at last year's show it has been on the market only a short time. This chassis comes with either of two body types, a four cylinder runabout and a five passenger touring car, both selling at $1385. The company will also offer a number of new models on the 4-90 chassis, including a coupe and a sedan at $1060 each, and a sedan on the 8A chassis at $1475.

COLE

Cole Motor Car Co.,
Indianapolis, Ind.

The Cole chassis has been unaltered but is improved by the addition of a hot spot manifold for the efficient handling of heavy grades of gasoline. Shock absorbers are used as stock accessories on all models. There is also a new body called the "aerotype," a square cut design with a high cowl and very sharp outline. This body is made in three varieties, the "tourster," roadster and "sportster" and all three sell for $2,395.

A novelty in construction which is very ingenious is a fitting at the rear end of the chassis which will carry either a spare wheel or a spare rim. There is a massive bracket attached to the end of



Both sides of the new ram's-horn "hot-spot" manifold on the new Chalmers

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the frame and for a wire wheel that supports a false hub. For a spare rim a set of arms is attached to the same bracket, these holding the rim from the inside in a very neat way. In addition to the three new models the other types of Cole cars are continued.

COLUMBIA

Columbia Motor Co., Detroit.

There have been no chassis changes on the Columbia, the sport model announced in September, together with the touring car, being continued. The Sylphon thermostat radiator shutter control, featured on that model alone, is, however, now standard equipment on the touring car. This is simply a regulation thermostat, which instead of regulating the amount of water passing through the jackets, operates the radiator shutter through levers, controlling the amount of air passing through the radiator. The effect is to automatically keep the engine temperature constant, bettering operation and economy, and tending to reduce the oil dilution from condensed gasoline. The price of the sport model, four-passenger, is $1,495, with wire wheels as regular equipment; that of the touring car, $1,350.

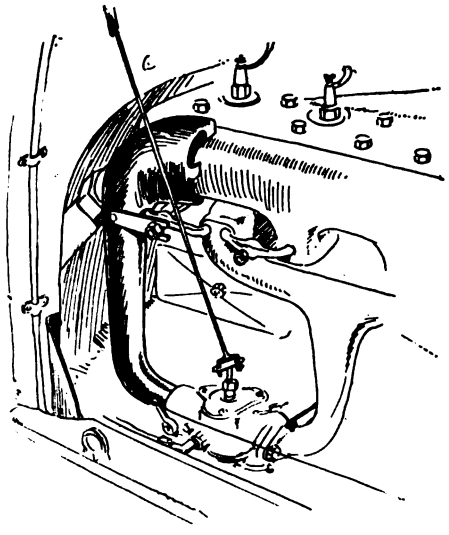
DANIELS

Daniels Motor Car Co., Reading, Pa.

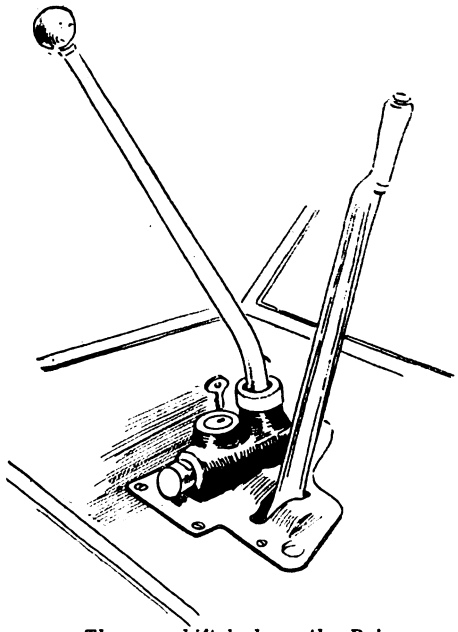
Three new closed car models have been added, a six-passenger landaulet sedan, a square-cornered brougham and a five-passenger double cowl type. The two new closed cars have no running boards. The landaulet has straight lines and is devoid of decoration. Daniels expects to use steel disk wheels to some extent in future.

DODGE BROTHERS

In line with their fixed policy for the past three years, Dodge Brothers continue the same four-cylinder model, incorporating improvements from time to time, but in no way fundamentally changing the design. The body lines on the car at present in production are better than formerly, the hood having been raised and the radiator made higher. Splash plates are fitted between the frame horns, giving the car a cleaner and neater appearance. Mechanically the car is little changed. The wiring from the North East starter-generator is concealed, and the fuse box is in a more accessible position. A dry multiple disk clutch having 7 plates, carried on annular ball bearings, is used. Lubrication of the thrust bearing is made easy by the mounting of the grease cup near the floor board, so it may be reached from the driver's compartment. Spiral bevel gears are used in the rear axle, and on some models coming through, the high gear ratio of 4.11 to 1, instead of 3.65. The brake drums are 14 in. in diameter, and the wheelbase is 114 in. One feature on these cars not generally known is that the headlamps may be turned around on their supports and used to illuminate the rear wheels, or the engine, as desired.



Ford, too, has a new heating arrangement to assist in vaporizing poor fuel



The gearshift lock on the Paige is new and ingenious

DOBLE

Doble-Detroit Steam Motors Co., Detroit

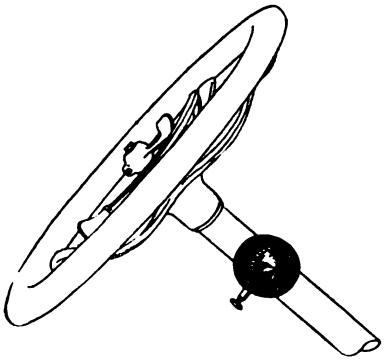
There have been no fundamental changes in the Doble steam car since its initial appearance at last year's show. It features a high pressure steam generator, heated from a kerosene burner that is electrically ignited, and a uni-flow steam engine geared directly to the rear axles. Among the noticeable changes made in the past year are the lengthening of the wheelbase from 128 to 135 in. and improvements in the car's equipment. In addition to the regular gages and instruments required, there are two instrument lamps with independent switches, a cigar lighter, and a tonneau light provided with an extension cord, permitting it to be used as a trouble lamp.

As formerly, the radiator is used as a condenser, conserving the water supply, and its efficiency is increased by the addition of a small steam turbine operated by exhaust steam and mounted on the front end of the generator casing. This drives a fan placed directly behind the radiator, or condenser, with a speed of about 1500 r.p.m. when the car is going from 25 to 30 m.p.h. No official tests have been made, but it is stated that this fan permits a maximum mileage of something over 2000 miles on one filling of the 25-gal. tank of water, and a minimum mileage of several hundred miles. The car is regularly equipped with a 7-passenger touring body, selling complete for $3,750. The price of the chassis is $3,250.

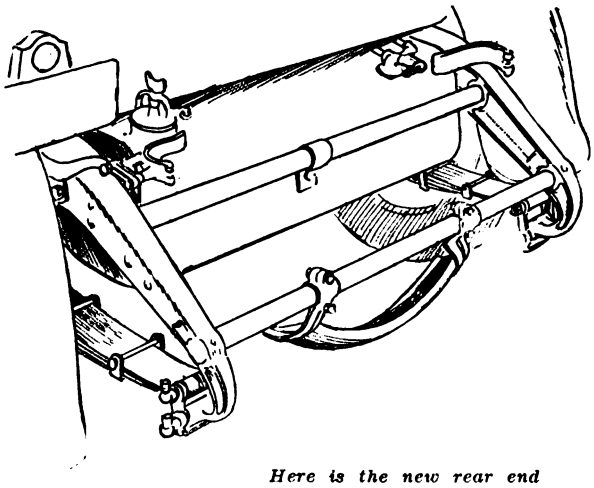
DORRIS

Dorris Motor Car Co., St. Louis, Mo.

Will have new models, new both in chassis and body ready for the Chicago show but will not exhibit at New York.



Steering column control on the Allen



Here is the new rear end construction on the Packard

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The new cars will be lower and will contain many improvements.

DORT

Dort Motor Car Co.,
Flint, Mich.

Slight modifications have been made in the mechanical construction.

ELGIN

Elgin Motor Car Corp.,
Chicago.

Elgin has added a convertible sedan to its line for 1918 so that it now comprises three models. The new body fits the standard Elgin chassis of 117-in. wheelbase. Front seats are of the bucket type. The ceiling is covered with the same material as the seats and door interior. Among other features is a heater. Finish is black with a silver stripe.

EMPIRE

Empire Automobile Co.,
Indianapolis, Ind.

The four-cylinder will be continued and the six is now made in a new model, series 73. This is a four-passenger, four-door roadster with a long, narrow hood, very high cowl, and low body sides. It employs the model 70A chassis. Special care has been taken to make the top harmonize with the body lines and gypsy curtains are made integral with the back curtain. Upholstery is Spanish leather and the finish maroon with white wire wheels. It sells for $1,350 as against $1,345 for the five-passenger touring car.

FIAT

F-I-A-T Co.,
Poughkeepsie, N. Y.

No change.

FORD

Ford Motor Co.,
Detroit.

No changes of importance have been made in chassis construction. Carburetion has been improved by the substitution of a larger hot air pipe to the carbureter. This benefits the vaporization on the fuel and tends to eliminate starting troubles resulting from the use of the present grade of gasoline. It should likewise effect a considerable saving in the fuel.

The only real change in body construction is in the enclosed two-passenger car. This formerly mounted a coupelet body with a folding top. Now, however, a coupe with a permanent top, sliding plate glass windows and removable pillars is used.

FRANKLIN

Franklin Automobile Co.,
Syracuse, N. Y.

While the series 9 Franklin chassis is the same by specification there have been several detail changes. An important one is a new piston which has slots cut from the bottom upward to the wrist pin line. This allows the clearance to be made very small, eliminating slap, and the slots care for expansion as the piston heats up. There is a new slip joint between engine and transmission which operates more freely, making the clutch action easier.

A primer is now combined with the carbureter, this comprising a small gasoline chamber with an electric heating coil. In starting a control is moved on the dash and this causes the engine first to draw in the "shot" of hot gas. Another novelty is the use of a cold air intake pipe which brings all the air for the carbureter from an opening under the cowl. It was found that the air under the hood was more filled with dust, and this dust encourages wear in the cylinders and carbon formation.

New spring supports are used, the bolts being drilled out and connected by wicking to small reservoirs holding enough oil for 100 miles or more at one filling. A similar sort of wick oiler is used on the front axle for the steering knuckles, a filling lasting for 500 miles. The front springs are stiffer and 1½ in. lower, making for easier riding and better steering. Eight different bodies are supplied.

F. R. P.

F. R. Porter Co.,
Port Jefferson, N. Y.

No changes.

GRANT

Grant Motor Car Corp.,
Cleveland.

Both internally and externally, Grant cars represent a refinement of the previous six-cylinder model, though no radical changes have been made. The engine has the same dimensions as formerly, but develops more power because reciprocating parts have been lightened, the oiling system improved and the bearing surfaces increased, permitting a greater engine speed. Practically all working parts have been enclosed on the engine and the overhead wiring eliminated. These, together with a permanent hot air tube replacing the flexible tube formerly used, the mounting of the vacuum tank on the dash instead of the engine, and placing the distributer on a short shaft, have made the engine more accessible and neat appearing. The gearbox, clutch and rear axle are nearly the same, except that the parts are larger, of better material and with additional means of lubrication. The wheelbase has been increased to 114 in., which permits the use of longer springs and more body room, thus increasing comfort.

The body lines have been altered through the adoption of a higher and narrower radiator, permitting more perfect stream lines. The shell of this radiator is nickel plated, and is readily removed, giving access to the core. Driving and riding ease is promoted by an increased leverage on the emergency brake, and the use of double decked spring cushions—the upper deck being small springs and the lower larger, each taking the small and the large jolts in turn.

HACKETT

Hackett Motor Car Co.,
Jackson, Mich.

The five-passenger touring car will be continued throughout the coming season unchanged, but the four-passenger roadster has been discontinued. Two new body styles have been added, one, an all-season car styled the Ultra Four, being a five-passenger enclosed car with a permanent top having side panels that may be removed as desired. The other is a two-passenger roadster, likewise featuring the Hackett sharp moulded body lines. These are mounted on a chassis of 112-in. wheelbase and driven by a Golden, Belknap & Swartz four-cylinder 3¾ x 4¼-in. engine, having an S. A. E. rating of 22.5 hp. The price of the touring car is $960, but that of the other two models is not yet determined.

HAL

Hal Motor Car Co.,
Cleveland.

The Hal line includes four new models, namely, a touring car, touring roadster, sedan and runabout. These models are driven by a Weidley engine fitted with a Stromberg carbureter, Westinghouse starting and lighting system, Delco ignition and Warner gearbox and clutch. The frame is Parish & Bingham, and both axles are Timken. Beauty and clean design are features. Mechanically the car has been improved by the addition of a torque arm, relieving all braking strains from the springs. A thermostat in the water system keeps the temperature of the engine constant and promotes economy and satisfactory operation in cold weather. Another point that increases the maintenance and sales value of the car is that Leustig spring covers are used. These not only render spring lubrication easier but also tend to keep them in the best condition. The brake countershaft is equipped with self-lubricating bushings so that no attention here is necessary.

One important feature of the Hal Twelve that appeals particularly to the lady purchaser is the high grade piano finish used. Fifteen coats of varnish and color are applied to every body, each being air-dried and hand-rubbed. No color combinations are standard for this series, the dealer or the purchaser choosing any desired color.

HARROUN

Harroun Motors Corp.,
Wayne, Mich.

No changes made.

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HAYNES

**Haynes Automobile Co.,
Kokomo, Ind.**

New streamline bodies feature the Haynes for 1918 on the six and twelve-cylinder chassis offered last year, with but few mechanical changes, including the adoption of Bendix drive for starting motor and a slight change in the method of spring suspension. The five and seven-passenger cars have wheelbases of respectively 121 and 127 in., either of which can be obtained with the six or twelve-cylinder engine. One new body type, a four-passenger four-door roadster, without divided front seats, has been added to the line.

HOLLIER

**Lewis Spring & Axle Co.,
Chelsea, Mich.**

The present model 188 eight-cylinder touring car is continued unchanged with the exception of a few refinements. These comprise gypsy curtains, French plait upholstery and wire wheels to order. A new model, however, styled the No. 206, is a six-cylinder touring car. The frame and axles are the same as used on the previous model, but the body has been lengthened 5 in. and built somewhat lower than in the past. The changes in the chassis comprises a lowering of the rear cantilever spring 2 in. by flattening the camber and increasing the length. This, together with 32 by 4-in. wheels, still further increases the overall height of the car. The engine used in this model is a six-cylinder ¾ by 4½ Continental, fitted with a forest feed splash lubricating system and using a Stewart carbureter.

HUDSON

**Hudson Motor Car Co.,
Detroit.**

Probably the most important change in the new series is the addition of a thermo-syphon control of the water circulation. This in no way affects the shutter, which is still hand-operated, but it does maintain the water circulation at the proper temperature and in conjunction with the shutter gives complete water control. Attendant with this, the heated air intake has been removed and in its place there is a plate permitting the openings at the side of the bonnet to be closed. Hence, when the front shutters are closed, the engine is in a closed changer containing air of the necessary warmth. No change has been made in the specifications of the car, but several improvements bettering the appearance and comfort are present. The touring car body now has a beveled edge. The windshield supports are more rigid, the door locks stronger, and other changes have been made to render the car rattle-proof. Riding comfort is improved by the use of Marshall springs in the upholstery and the car springs are flatter and fitted with adjustable hangers and shackles. Collins curtains permit enclosing the open cars in bad weather. The standard color has been changed to a slightly lighted blue with a white strip carried around the body molding on the louvres and at the frame end.

HUPMOBILE

**Hupp Motor Car Corp.,
Detroit.**

The Hupmobile series for 1918 is entirely new. Like previous Hupmobiles the car is low, and has no break in its lines from front to rear. It is a smaller car than its predecessor, having only a 112-in. wheelbase, as compared with 119 in. on the previous model, but this has been rendered possible due to shortening of the hood and not to making the body smaller. Features new to Hupmobile practice comprise a mixture pre-heating device mounted on the exhaust manifold. Above the carbureter the intake is exhaust jacketed, so that the mixture is pre-heated before it enters the cylinder.

The new engine has a detachable head, permitting the carbon to be removed or valves ground without difficulty, and the tappets are assembled with the guides as two units so that ready removal is possible after taking off the valve cover plate. Though the lubricating system is still pressure fed, the oil is circulated by a gear pump driven by a camshaft. This pump delivers the oil directly into a horizontal lead having independent feeds to the three main bearings, which in turn distribute it to the connecting rod bearings through leads in the crank. As the gasoline tank has been placed at the rear to give more room in the front compartment, Stewart vacuum feed replaces the gravity feed formerly used.

The points increasing the sales value of the car are that it is a lighter and smaller car at a lower price, but with the room and sturdy characteristics of its predecessor. Ease of driving is increased by the use of an exceptionally long gear shifting lever and more accessible mount of the instruments on the dash. Driving comfort is better by provisions for keeping the front compartments cool in summer. The exhaust pipe is carried away from the body, the pedal openings are normally stopped by rubber sealing disks and the bottom pan is curved so as to keep the air from this compartment.

INTER-STATE

**Inter-State Motor Co.,
Muncie, Ind.**

Will exhibit new models at the show.

JACKSON

**Jackson Automobile Co.,
Jackson**

Jackson cars are the same as for the past season, with the exception of the addition of a 4-passenger sport model styled the "Flyer." This car not only features the low, racy lines characteristic to sport cars, but the equipment is also exceptionally complete. The regular equipment includes cigar lighter, motometer, tonneau light, clock, and choice of four optional colors.

JORDAN

**Jordan Motor Car Co.,
Cleveland.**

The Sport-Marine is a new Jordan model, and though retaining the same wheelbase of 127 in. as former cars, combines a four-passenger straight line, beveled edge body with a greatly refined chassis. Body noises are reduced and the weight decreased by the use of an all aluminum body. The color is optional, being either Briarcliff green or Ascot maroon. Special bright handbuffed leather upholstery is used and the equipment includes a front bumper, Troy windshield, Macbeth lenses, Waltham clock, door opening curtains, Burbank tailored top, wire wheels and Silvertown cord tires. Refinements in the chassis comprise a new special Continental engine. In this engine vibration has been practically elimmated by an increase in the diameter of the crankshaft and length of the crankcase bearings. The pistons have been increased in length and a hot spot provided in the manifold to care for lower grade fuels.

The generator, likewise, is so mounted that it is a separate unit and no drive is taken through it. The latest type of ball-bearing Delco distributer is used, and the wiring has been changed to make this a one-wire system throughout. The speedometer is driven through two small spiral gears and the springboards have all been redesigned and are lubricated by means of oil instead of grease. The radiator is larger, and the frame side bars have been strengthened by an increase in depth to 6 in. Seven body types are mounted on this chassis as follows: Sport-Marine, Limousine, Town Car, Brougham and Sedan bodies.

KISSEL

**Kissel Motor Car Co.,
Hartford, Wis.**

During the past year this firm has increased its line by the addition of a double six. This has an engine of 2⅞ x 5 in., with an S.A.E. rating of just below 40 hp. It is sold either as an open touring car or as an all-year car. Delco starting, lighting and ignition systems are fitted. Other Kissel models include four and six cylinder types.

KING

**King Motor Car Co.,
Detroit.**

Though in exterior appearance the new King differs but slightly from its predecessor, a number of minor changes have been worked out in the past season's production. The main difference in out-

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ward appearance is a slight change in the line and finish of the tops, together with a change in the seating proportions. An exhaust jacketed intake manifold has been placed on the engine to better vaporization, and the new type of Atwater Kent ignition is being used. Quieter engine operation has been effected by the use of Morse chains on the timing gears, and the use of a new camshaft with mushroom tappets. Bijur starting and lighting system is now used, rendered somewhat more compact and lighter than the former system through the use of an improved Bendix drive. The new drive pinion has but 11 teeth, giving a greater reduction between the engine and the flywheel. The propeller shaft brake has been discarded, both service and emergency brakes now being on the rear axles, and the speedometer is driven from spiral gears at the rear of the gearbox.

LEXINGTON

Lexington Howard Co.,
Connersville, Ind.

Series R is an entirely new model, having a Brush type frame similar to that of the Marmon and Moline. In this the running boards are used to add stiffness to the frame and welding replaces a great deal of the riveting. The frame is light, and very much more rigid than the normal type. Fabric disk universals are also a feature of this new chassis, eliminating all possibility of noise from these parts. Other novelties are the inclosure within the gear case of the speedometer drive as well as the tire pump gears. The emergency brake is also mounted upon the transmission. The wheels have steel felloes with wood spokes, eliminating the risk of rim splitting. The engine is a six 3¼ x 4½ in. and has the Moore multiple exhaust system which is an exclusive feature of all Lexington models since 1911. It has an ejector effect which relieves back pressure while helping muffling. There are three body types for the model R five-passenger with two folding seats at $1,585, a low built "Spor-Tour" four-passenger at the same price and a convertible sedan at $1,785.

Series O clubster $1,385 and convertible coupe $1,545 are continued without any change to either body or chassis.

LIBERTY

Liberty Motor Car Co.,
Detroit.

Fundamentally, the Liberty line for 1918 is a continuation of the 1917 cars, as the chassis has been unchanged except for a very few minor refinements. A new two-passenger roadster, selling for $1,350, has, however, been added, completing the models, which are a four-passenger roadster and five-passenger touring car at $1,350, a sedan at $1,925, a brougham and a limousine at $2,700. On the roadster model the features are attractive appearance, large amount of leg room and exceptionally large doors, these being 23 in. wide.

LOCOMOBILE

Locomobile Co. of America,
Bridgeport, Conn.

The principal change in Locomobile models is a new system of ignition called "tandem" ignition, whereby two sparks are so timed relatively that piston slap is eliminated. Locomobile intends to maintain the quality of the materials used in their chassis and bodies fully as good as in previous years.

LOZIER

Lozier Motor Co.,
Detroit, Mich.

Practically no changes.

McFARLAN

McFarlan Motor Co.,
Connersville, Ind.

McFarlan has a new sport type of body of extremely low build and lines which enhance the lowness. It is a "recumbent" style, having room enough for the passengers to almost lie down in the deep upholstery. Externally the flat side effect with bevel edge has been accentuated. The center of gravity of the whole car is lower, making for safety at high speeds. There have been a few minor chassis changes, the most important being some increases in the size of the bearings fitted at various points.

A feature of McFarlan policy is to give individual options in equipment, painting and upholstery. Small modifications in the body itself are also given if desired. This permits each owner to have some point or points unique in his particular car.

MAIBOHM

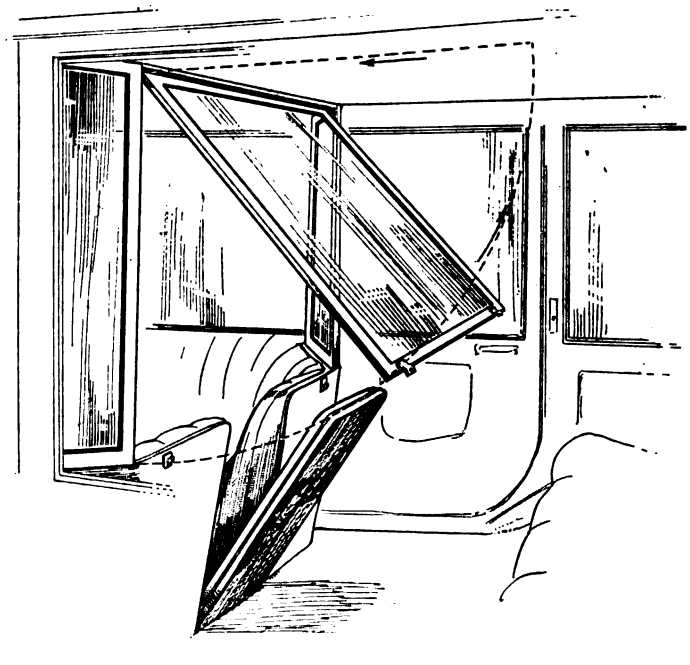
Maibohm Motors Co.,
Racine, Wis.

The Maibohm has the same smart and distinctive lines that characterized it last year. The sport roadster, which can show quite a turn of speed, is a low built car with very comfortable upholstery, so that the passengers sit within the body despite its rakish exterior. The pedals are adjustable to make driving comfortable for different individuals, and the levers are bent so they can be easily reached. The sport roadster sells this year for $795.

MARMON

Nordyke & Marmon Co.,
Indianapolis

Quite a few changes have been made in design. The engine casting is now made without the large handholes on both sides. The front seat is now a plain double seat and the windshield is inclined rearward at an angle of 10 degrees. A plain bearing fan is used, and the clutch throwout has been redesigned. A motometer is now standard equipment, as is the Bijur starting and lighting system. A change has been made in the oiling system, whereby the feed of oil to the bearings is greatly reduced when the engine is operating on low throttle. This obviates carbonization and waste of oil. A magnetic type of tank gage is fitted and the vent of the gasoline tank is carried beneath the floor boards so as to completely seal the driving compartment against gasoline fumes. A French plate glass window is provided in the rear of the top, instead of the formerly customary celluloid window.



Hupmobile has a new type of sedan in which the division folds up out of the way. There is a removable piece between the front seats which can be taken out, leaving an aisle

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MAXWELL

**Maxwell Motor Co., Inc.,
Detroit**

The Maxwell model 25, which has been the sole product of the Maxwell Motor Co., is continued, but with several important changes in chassis and body design that greatly increase its value. The wheelbase has been increased from 103 in. to 109 in., which, in addition to giving increased body room, makes an easier riding car. This riding ease is still further increased by an improvement in the rear spring construction. Instead of the ¾ scroll elliptic type, a semi-elliptic compensating underslung spring is used. This spring is 49 in. in length and being underslung renders the car lower and promotes driving ease on rough roads. The frame is 6-in. channel steel and the unsightly splash guards are eliminated, both improving the appearance and permitting a wider runningboard. The body lines are more attractive and blend well into the cowl and hood, which, combined with full crown one-piece fenders and sloping windshield, distinguish the car from its predecessors.

The mechanical changes constitute a widening of the fan belt, which also drives the generator. By this the use of an overrunning starter clutch is obviated. The ignition and starting units remain the same, but with a change in the wiring system. This is simplified to a straight 12-volt single-wire system on the starter and lights. The starter switch is of the single-pole type and is operated by the same pedal that engaged the starter gear. An automatic magnetic lock prevents the gear from being engaged when the engine is in motion, so that the gears cannot be accidentally stripped.

MERCER

**Mercer Automobile Co.,
Trenton, N. J.**

No changes of importance have been made in the mechanical design. The runabout will be fitted with a Westinghouse lighting and starting system and all cars will have smaller wheels—32 x 4½ inch.

METZ

**The Metz Co.,
Waltham, Mass.**

Among recent improvements to the Metz car are a balanced crank-shaft, a heavier rear axle, heavier springs and a Westinghouse generator and starter. Atwater Kent ignition is used and the car is finished in black with white striping. Its price, both as runabout and 5 pass. touring car, is $695 f.o.b. factory.

MITCHELL

**Mitchell-Lewis Motor Co.,
Racine, Wis.**

Mitchell enters the 1918 season with a continuation of its model D-40 and C-42, and offers a three-passenger runabout to the town car. The company makes its own engine, which is a six, of 3¼ in. bore and 5 in. stroke in the D-40 and 3½ x 5 in. in the C-42. The axle also in the former is three-quarter floating, while that of the C-42 is full floating. So far as body lines are concerned the same streamline types are found in the latest models, in fact Mitchell cars have always been featured with the high radiator and straightline bodies.

MOLINE-KNIGHT

**Moline Automobile Co.,
East Moline, Ill.**

A new seven passenger Moline-Knight special will be exhibited, which model is built on the 50 hp. chassis. Its special features include five wire wheels, cord tires, bumper, Gabriel snubbers front and rear, heater, electric cigar lighter, special leather top, rubber mats on running board and Pyrene fire extinguisher. It will be painted Moline gray and sell at $2250. On the regular models Spicer universal joints are now used in the final drive and fabric joints between the clutch and transmission. The "40" sells at $1650 either as a chummy roadster or touring car and the "50" at $1985.

MONROE

**Wm. Small Co.,
Indianapolis.**

With a few minor changes the Monroe M-6 car for 1918 is the same as the 1917 model. The tires were formerly 32 by 4 in., but are now 32 by 3½ in. The most important change is in the price of the touring car. Formerly this was $1,095 but now it is $995—a decrease of $100. The feature of this car is the simplicity and light weight rendered possible through the use of pressed steel. The frame is of extra depth and has steel runningboards that form a part of the frame, eliminating the use of heavy body sills, step hangers and side shields. Three body styles are offered. The touring car and roadster at $995 and the sedan at $1,850.

MOON

**Moon Motor Car Co.,
St. Louis, Mo.**

A light six 2⅞ x 4½ in. with Continental motor selling at $1,095 is the new Moon model. In a general way the new car follows all the lines of former Moons both in chassis and body. The model 6-43 has been dropped and a modification of it known as 6-45 substituted. This is a slightly larger car of seven- instead of five-passenger capacity. The wheelbase is 125 as against 118 in. On all models there is a higher radiator, which blends better with the rounded, high side bodies. In the new chassis parts include Spicer joints, Timken axles and Fedders radiator.

NASH

**Nash Motors Co.,
Kenosha.**

The Nash six, formerly the Jeffery, is an entirely new product abounding with refinements both mechanically and in the body. Simplicity marks the construction of the engine, which is a valve-in-the-head six. It has a bore of 3¼ in. and stroke of 5 in. The power plant as well as the entire chassis is very clean in design, and there is not an unnecessary rod or cross bar in evidence anywhere. There is a special means for heating the air and a manually-controlled shutter for varying the amount of incoming cold air. Starting, lighting and ignition are by Delco. The emergency brake is on the driveshaft, as well as the speedometer drive.

There are three body styles on the new chassis, a five-passenger touring, a four-passenger roadster on the 121-in. wheelbase, and a Springfield sedan on a 127-in. wheelbase chassis, which differs only in the length. As the seven-passenger member of the line the Jeffery six is continued, but carries the Nash nameplate.

NELSON

**E. A. Nelson,
Detroit.**

This car is substantially the same as last year, though three new bodies have been added during the year. One is a four-passenger touring car, selling for $1,400; another the two-passenger roadster, $1,200, and the third a closed car for $1,800. The sedan is continued at $1,800. The feature of this car is a compact four-cylinder overhead valve engine, suspended at a slight angle, and permitting an exceptionally roomy body with small wheelbase and light weight.

NATIONAL

**National Motor Car and Vehicle Co.,
Indianapolis, Ind.**

National novelties for 1918 are two new bodies, the chassis being continued unchanged in both six- and twelve-cylinder models. These new bodies are a seven-passenger convertible touring sedan suitable for either six- or twelve-cylinder chassis, and a two-passenger speedster for the twelve only. The touring sedan has a particularly light and strong construction of top, which makes the finished car little heavier than an open touring car. The two-passenger body on the twelve chassis has accommodation for a great amount of baggage in a compartment back of the seat. The

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car is guaranteed to be capable of 70 miles an hour or more.

OAKLAND

**Oakland Motor Car Co.,
Pontiac.**

The appearance of the Oakland has been improved by the addition of an all-steel body having a longer shroud and fitted with a sloping windshield, this all-steel construction adding materially to the stiffness of the car as a unit and decreasing the possibilities of rattles and wear. This stiffness has been further increased by the addition of new cross members and gusset plates. The sales value of the car has been increased not only by this improved appearance but also by bettered mechanical details. The oiling system is now pressure feed through a hollow crankshaft and the reciprocating parts have been lightened, the two requiring less bearing adjustment and reducing oiling troubles. The radiator is larger and a fan of the two-blade airplane type betters the cooling. This combined with an exhaust heated intake and exhaust heated carbureter cares for the propeller engine temperature both in summer and winter. An increase in economy is quite noticeable due to the heat intake manifold, which is fitted with a damper that regulates the amount of heat supplied to both the manifold and the carbureter.

The riding qualities have been improved by re-designing the springs. These are semi-elliptic, the rear being underslung directly to the frame, and ride almost flat when the car is loaded. The front springs are 35 in. long. A marked improvement is noted on the generator. It is equipped with thermostatic control, which in cool weather increases the charging current as long as the battery and generator are cooled. As soon as the battery and generator warm up this automatically reduces the charging rate. Thus the advantages in the rates of charging the storage battery are fitted to the varying temperature conditions of summer and winter.

OLDSMOBILE

**Olds Motor Works,
Lansing.**

No changes.

OLYMPIAN

**Olympian Motors Co.,
Pontiac**

The Olympian Motor Co. is bringing out an entirely new model combining features that have proved satisfactory in the past, with others that are entirely new. The body is a full streamline from the top and sides of the radiator, and the sides run into the frame on all models. Four body styles are offered, a 5-passenger touring, a 2-passenger roadster, a coupe and a sedan. A feature of all these bodies is the arrangement of the front compartment. This is rendered accessible from either door, without interference with the control levers. This is possible, as the levers are placed beneath the instrument board and out of the way.

Though mounted on a chassis of 112-in. wheelbase, riding ease equivalent to 118-in. wheelbase is claimed, because of the spring suspension. The rear springs are set crosswise with the frame and are of the inverted double semi-elliptic type, and their location 6½ in. back of the rear axle center increases the spring action center distance, as would increased wheelbase. The front springs are suspended inside the frame members and insure an exceptionally short turning radius.

The frame is the Brush type. It is 6 in. deep, of special alloy 12-gage steel, and has a 5½-in. kick-up at the rear. The body sides run into the frame, which acts as a side apron integral with the pressed steel runningboards. The engine, which forms a unit with the clutch and gearbox, is 3¼ x 4½ in. and develops 43 h.p. at 2500 r.p.m., with a torque of 90 ft. lb. at the same speed. Furthermore, it is a valve-in-head engine, having tappets that may be adjusted with the engine running. The equipment includes Stromberg carbureter and Remy ignition and Stewart vacuum tank. The clutch is Borg & Beck dry disk, and the gearbox Grant-Lees three-speed, and the torque is taken through two pressed steel torque arms running to a point at the rear of the gearbox.

OVERLAND

**Willys-Overland, Inc.,
Toledo.**

Note: See Willys-Knight.

PACKARD

**Packard Motor Car Co.,
Detroit.**

The most noticeable change in the Packard is in the body lines. The radiator has been made narrower, and the sharp moulded line has been carried through the bonnet into the cowl and body, which, with a marked tilt to the windshield, distinguish it from its predecessors. Riding comfort has been bettered by the elimination of the rear platform springs in favor of semi-elliptic springs, 60 in. long by 3 in. wide, these being higher and narrower than the former springs. Driving ease is increased by the new mounting of the gear shift lever, it being in the center instead of at the side as formerly. Mechanically the car is little changed, maintenance being bettered by a more accessible mounting of some of the oil cups. Refinements mark the finishing of the enclosed models, the trimmings now being narrow beaded material instead of lace formerly used.

OWEN MAGNETIC

**Owen Magnetic Car Co.,
New York.**

A new model has been brought out with a six-cylinder 4 x 5½ in. engine having overhead valves. The feature of the car, of course, is the Owen magnetic transmission, which gives a wide range of speed and torque without shifting gears. The car has a 142-in. wheelbase and will be built either as a touring car at $5,300 or as a limousine or sedan at $6,200. Rudge-Whitworth wire wheels will be fitted, five wheels being furnished with each car, and cord tires. Special efforts have been made to develop attractive and comfortable bodies.

PATERSON

**W. A. Paterson Co.,
Flint, Mich.**

A new convertible sedan has been added to the Paterson body line. This has only one door on either side, the left one placed forward and the right side door about the middle of the car. Door posts and roof supports are few in number and thin, so that the amount of window is at a maximum.

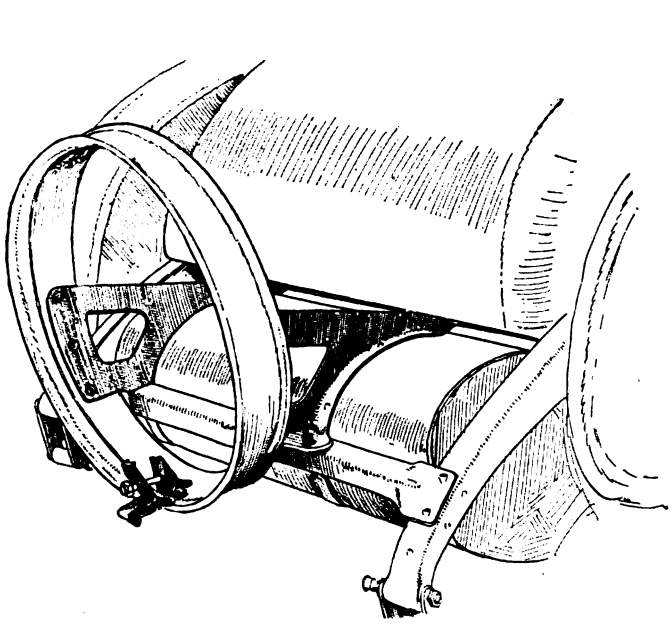
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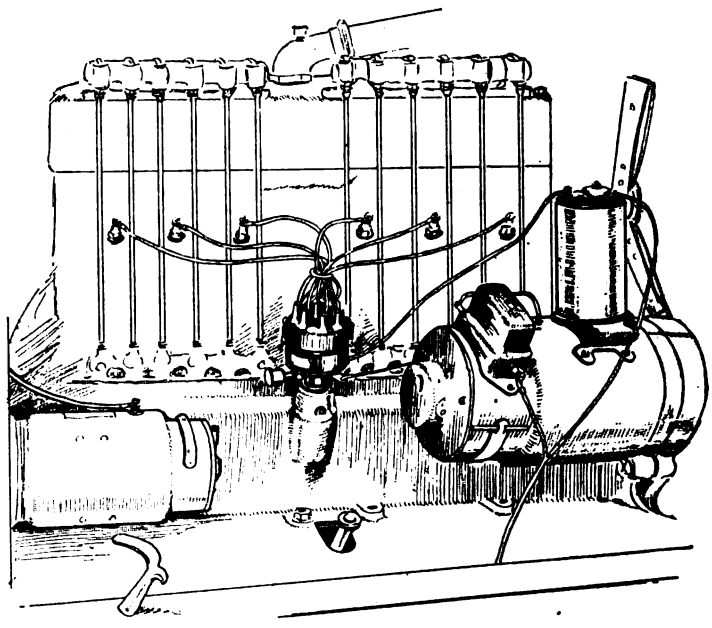
**Paige-Detroit Motor Car Co.,
Detroit.**

The Paige models for 1918, styled model 39 and model 55, are in the direction of increased economy, better appearance and greater driving comfort. Carburetion has been improved by a new manifold whereby the air is drawn through over the exhaust manifold, passed through the cylinder block to the carbureter, and again back through the block to the intake manifold proper, in the passage becoming progressively heated. The valve arrangement has been changed to permit a more direct passage of gas, and the diameter of the manifold throughout is maintained at a constant circular section, presenting a minimum wall area for any volume of gas. This construction betters economy and gives more satisfactory operation, particularly in cold weather. Starting in cold weather is bettered by the installation of an electrically heated coil in the carbureter bowl that permits the gasoline to be heated, facilitating vaporization.

Another engine change, making maintenance easier, is the automatic valve cleaning device. This is simply a spacer at the bottom of the valve stem, so that on closing the stem is freed and wiped against the seat by the uncoiling action of the valve spring. This tends to keep the valve free from carbon and eliminate pitting with its subsequent regrinding. A gear shift lever lock is standard equipment on all models, comprising a Yale lock mounted in a new gearbox cover boss, and locking the car

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Here are two views of the new Oakland. The first shows the heavily reinforced rear tank support and the new tire carrier, and the other shows the general accessibility of the starter, generator and ignition apparatus

in neutral. Loss of oil is prevented on the 6-55 model by the use of a copper tube connecting the rear end of the rear main bearing with the reservoir, so that oil formerly lost is returned. The false bottom of the oil pan is no longer spot welded to the pan, so that the two may be separated and easily cleaned.

PEERLESS

Peerless Motor Car Co.,
Cleveland

Peerless cars are not new models, but merely an improved Model 56 8-cylinder car, and these changes in the main have been in the body and in the engine. During the past year the rocker arms formerly in the V between the cylinder blocks have been eliminated. The valves now operate directly through the valve stems. This feature has eliminated a certain amount of lost motion possibilities, with its attendant noise, and has rendered the parts more accessible. The engine has still further been cleaned up by mounting the air pump at the front of the engine instead of in the V. And an oil gage has been placed on the engine, so that the driver can see at a glance the amount of oil in the base. The body lines have been likewise cleaned up, in line with the present-day trend. The cowl is now rounded and the windshield tilted to accentuate the line. In the skirting joining the running board with the frame the offset at the rear has been eliminated. This formerly provided room for the front end of the rear springs, but the skirting is now straight from front to back. The two-power range featured on Peerless cars is retained, and for this is claimed economy, combined with reserved power.

PREMIER

Premier Motor Mfg. Co.,
Indianapolis, Ind.

No change.

PIERCE-ARROW

Pierce-Arrow Motor Car Co.,
Buffalo, N. Y.

The Pierce line for 1918 remains precisely the same as for the previous year. No changes have been made in either chassis or bodies. Rumors that the Pierce company were to discontinue passenger car manufacture have been abroad this Fall, but these are denied by the company, which intends to continue the manufacture of its full line.

REGAL

Regal Motor Car Co.,
Detroit.

No new models are announced. However, a few minor changes have been incorporated in the present series. An Auto-Lite two-unit, six-volt starting and lighting system, together with an Atwater-Kent ignition system, replaces the system formerly used. The spring suspension has been changed slightly by the use of a heavier front spring and rear springs with slightly more camber, both tending to make the car easier riding and steadier on the road.

REO

Reo Motor Co.,
Lansing.

The present six-cylinder model will be continued through the coming season unchanged, in both open and closed models. It is reported that an entirely new four-cylinder model will be shown at the New York show, but at present the details and specifications are not available.

ROAMER

Barley Motor Car Co.,
Kalamazoo.

Still specializing in distinctive cars, the Barley Motor Car Co. has two new Roamer models. One is a four-cylinder car driven by a Duesenberg engine and the other powered by a six-cylinder Duesenberg. With the exception of the engines the cars are very nearly the same. The front seat, however, is now a unit instead of divided as formerly, and the chassis has been strengthened slightly throughout. The wheelbase is now 128 in., 2 in. longer than before, and semi-elliptic springs and torsion tube are added. The Continental powered car is continued the same as last year with a few minor improvements. The new four-cylinder Duesenberg model is styled the D-4-75, having a 4 in. bore and 6 in. stroke. The cylinders are cast in block, the engine accessories being Stromberg carbureter, Bijur six-volt starting and lighting system and Willard batteries. The price is $2,950 for the four-passenger model.

SAXON

Saxon Motor Car Corp.,
Detroit.

The changes noted in the model Y-18, which supersedes the S-4-T six-cylinder model, are mainly in a cleaning up of appearance and in minor refinements. On this model the upholstery is of genuine leather, of the pleated type, being easier to keep clean and longer lived. The side curtains are of the quick acting construction, carried in envelopes in the top, and may be easily removed or replaced. Leather pads are now placed on all doors, keeping them from being soiled. The B-5-R four-cylinder roadster is continued unchanged for the present.

SIMPLEX

Simplex Automobile Co.,
New Brunswick, N. J.

No change.

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SCRIPPS-BOOTH

Scripps-Booth Corp., Detroit.

In addition to its four and eight-cylinder models the Scripps-Booth Corp. is adding an entirely new six-cylinder car. As on the previous models, this engine is of the valve-in-head type, with the cylinders cast in block. The bore is 2 13/16 in. and the stroke is 4¾ in., having an S. A. E. rating of 19 hp. and 170 cu. in. piston displacement. Cooling is by pump circulation and lubrication by forced feed. On this model a Remy two-unit six-volt starting, lighting and ignition system is used, and the clutch is of the leather-faced cone type instead of the multiple disk dry-plate type used on the eight-cylinder. The wheel-base on this model is 112 in., 2 in. longer than that of the four and 8 in. shorter than that of the eight.

Wood artillery type wheels are regular equipment instead of the wire wheels used on the other models. The color of the touring car is blue-black and that of the roadster green. Though the body lines are still unmistakably Scripps-Booth, the sharp moulded edge of the hood is carried straight through the cowl and to the rear. The torpedo stern is discarded for one of the conventional type. Mechanically the eight-cylinder model is little changed, except that the rear compartment is rendered more accessible and roomier. The seats are no longer divided and rear doors are provided. The price of the eight is $1,285 for the four-passenger and $2,575 for the town car, but the price of the new six is not yet determined.

STANDARD

Standard Steel Car Co., Pittsburgh, Pa.

Slight mechanical changes.

STANLEY

Stanley Motor Carriage Co., Newton, Mass.

While essentially the same in system the Stanley steam car is much improved by a new line of bodies and by some chassis changes making for convenience in operation. The system of lighting up the burner from cold by the use of an acetylene gas torch has been abandoned, this function being now performed electrically by the mere throwing of a switch. The current heats the pilot light and ignites the fuel automatically, and the current is cut off automatically when it has done its work. Some small changes in the water pumps have eliminated a substantial length of pipe and removed the slight sound of operation of the pumps.

The bodies are of modern outline with very clean-cut lines. There is a new radiator without the rounded top and with a sharper Vee front, giving a suggestion of speed. The finish will be a dark green instead of black and the interior finish of the bodies is improved. There will be a four- and a seven-passenger stock model.

STEPHENS

Stephens Motor Branch, Moline Plow Co., Moline, Ill.

There are no chassis changes and the old line of bodies will be continued. In addition there will be a four-passenger speedster and a five-passenger sedan.

STEARNS

F. B. Stearns Co., Cleveland.

Featuring the four and eight-cylinder Knight engine construction, the changes in the past year have been in the nature of minor refinements and in body design. The body lines are entirely new, the radiator being narrower and higher, and having a sharp moulded edge that is carried through to the rear of the car. The snappy appearance has been still further increased by an extreme tilt on the windshields of the open models. On both models the gasoline tank has been placed at the rear, and Stewart vacuum feed is used. Mechanically few changes are noted. The oil pump on the eight-cylinder model has been placed at the base of the crankcase instead of on the eccentric shaft, decreasing the necessary lift and permitting the last drops of oil in the base to be used. This change has also permitted a slight simplification of the oil distributer unit. On the eight-cylinder I-section connecting rods replace the circular machined section formerly used, and the cast-iron pistons have been lightened, the wrist pins being carried on bronze bushings. The four-cylinder car now uses a similar Stearns multiple disk clutch, as is used on the eight-cylinder model, instead of the leather-faced cone type previously employed. All tools are carried in special compartments in the door near the driver's seat, and may be locked in place.

STUDEBAKER

Studebaker Corp., Detroit.

Studebaker body lines remain the same generally, but changes in the front seat and spring suspension give the car a longer appearance. The new series 18 chassis is the same as the previous model. There is a difference in the seating arrangement of the five and seven-passenger. Instead of individual front seats there is a straight seat, placed lower than the individual seats of the seven-passenger. The elimination of the auxiliary seats permits the use of a new limousine type foot rest.

There is a new mounting of the windshield and the steering wheel is adjustable. Safety step plates are placed at the entrance of the tonneau doors. There are two options in color, a Packard red and deep blue. Changes in the chassis include lighter rear springs. There is also a deflecting type lens in the headlamps. Rear windows in the curtain are plate glass nickel trimmed. The price of the four is $1,050 and the six $1,350.

STUTZ

Stutz Motor Car Co., Indianapolis, Ind.

Stutz is now making only four-cylinder cars with sixteen valve engines, the eight-valve now being discontinued entirely. The sixteen-valve engine was used on one model last year and its success has caused it to be fitted to the other chassis also.

TEMPLAR

Templar Motors Co., Cleveland, Ohio.

This is a high efficiency four with carefully balanced engine and large power for its size. It is a new car recently produced and is listed with five and four-passenger touring bodies at $1,985, four-passenger Victoria, $2,155, and there is also a "touring roadster" at $2,255. The latter has racing lines with very low seats and low sides. There is an ample locker behind the seats and the spare wire wheel rests on top of this.

VELIE

Velie Motors Co., Muncie, Ind.

Nine new body types are mounted on the series 38 and 39 chassis, the latter being practically unchanged. More power has been obtained by better workmanship and the riding qualities have been improved somewhat. A leader among the new bodies is the sport model, which has exhaust pipes brought through the hood, and very snappy lines indeed. Others are the roadster, four, five and seven-passenger touring cars and town car, coupe, cabriolet and touring sedan complete the nine. All have straight lines and the radiator has been increased in height so as better to suit the modern style. Prices range from $1,340 to $2,450, the town car being the most expensive, as it is finished in high-class custom style. The sport model costs $1,850, with a Victoria top.

WILLYS

Willys-Overland Co., Toledo.

With the exception of the addition of several body styles, and the consolidation of two six-cylinder models known as the 85 and 88 into one model styled the model 89, the cars manufactured by the Willys-Overland Co. are the same as exhibited at the shows last year. Comprising six chassis, running from a

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small four-cylinder model, to an eight-cylinder Knight powered car, and including 34 body styles, purchasers in nearly every price class field are cared for. And plans for the production of a smaller low priced four-cylinder car are well under way. This new car, briefly described in Motor World some time ago, will be exhibited at the New York, Chicago and Detroit shows. It is a light weight car, designed for quantity production at low prices, and features a three point cantilever spring suspension that is entirely new. The equipment includes electric starter and lights, sliding gears and comfortable and attractive body.

WESTCOTT

Westcott Motor Car Co.,
Richmond, Ind.

Few mechanical changes have been made for the 1918 season. Oil cup lubrication has been substituted for grease cup lubrication in a few places and a built-in tool compartment is provided. The engine is a Continental and the transmission a Brown-Lipe and Timken axles and Gemmer steering gears are used. The engine has six 3½ x 5¼ in. cylinders. Three body styles are offered—seven-passenger touring, three-passenger touring and roadster.

WINTON

The Winton Co.,
Cleveland

Present chassis models 22 and 22A show no marked changes, engines in both models having the cylinder cast in pairs, with all moving parts inclosed, and the camshaft and magneto driven by a silent chain. The valves are all on one side, and are interchangeable; and the aluminum crankcase is divided into upper and lower halves, providing accessibility to the cranks. The engine of the smaller car is 3¾ x 5¼ in., that of the larger 4½ x 5½ in., having an S. A. E. rating of 33.75 and 48 hp. respectively. High quality, combined with a great number of options as to body style and color, gives the purchaser opportunity to obtain almost any type of car, each with an individual appearance. Forty-eight body styles are suggested by the company, and these may be altered or adapted to the purchaser's suggestion, and the color scheme is completely at the option of the purchaser. The price of the larger car is from $3,500 up, and that of the smaller $2,950 up.

WOODS

Woods Motor Vehicle Co.,
Chicago.

The present series of the Woods dual power car is a continuance of last season's series. The chief feature of this car is its power plant, consisting of a Continental engine back of which is an electric motor. Either can be used singly or together in driving the car. The electric motor is ready at all times to run the car independently or to assist the engine to run the car under a load. The price is the same as last year, $2,950. The lines of the body are harmonious and altogether the car is smart appearing. Standard finish is dark blue or gray, but other colors can be had if desired.

WHITE

White Co.,
Cleveland.

The White models for 1918 are a continuation of the 1917 models, except that the tire size on the G-M models has been changed from 37 x 5 to 35 x 5 in.

Breaking In with a New Agency

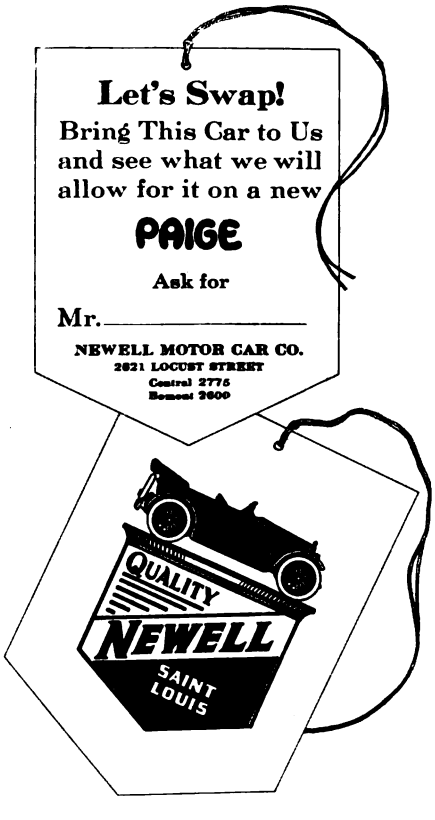
Newell, of St. Louis, Had to Use Novel and Drastic Means

PAIGE owners in St. Louis have been introduced to the new distributer of Paige cars by a novel advertising card which they have found on the steering wheels of their cars recently. This is shown herewith.

The Newell company became the Paige distributer a few weeks ago, after giving up two lines of cars that had been handled by that company for several years and with which the name Newell had been associated by constant and liberal advertising.

"When we took the Paige distribution," said President James E. Newell, "we had to begin all over again. Not only that, but we had to make the public forget the old association. Of course we bought liberally of newspaper space, but that does not reach all of the people, especially those who are satisfied with the make of the car they own. We needed something different, hence this card."

The Newell company has a service station for the Paige cars, and it is something of an item to turn the 400 or 500 Paige owners from their old connections to a new one. This was one of the objects of the card, but Mr. Newell says:



This is the tag the Newell company left hanging on the steering wheels of cars on the street

The Card Shown Here Was Tied to Steering Wheels

"Our main object was to reach car owners who are not likely to read advertising so that we could get them to associate the names Newell and Paige. We started hanging these tags on steering wheels of Paige cars and we got results. Now we are putting them on steering wheels of all cars that are likely to be exchanged for a Paige car.

"We do not want to annoy car owners, so we do not bother those with whom we have no chance of a trade, but we are now going after any prospect.

"This card has caused considerable comment and we have found it a good advertising venture. We sent one of the cards to the Paige company and now the home office is printing a card on the same plan, but larger and on red cardboard."

The Newell company, as a part of the plan of changing its lines, entirely closed the building for four weeks and used much newspaper space, making a mystery of the car that would be sold there. This was a part of the plan to disassociate the name Newell with the cars formerly sold in order to prepare the way for the advertising of the new car.

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Keep the Sign Over the Door

IN these times the dealer is often perplexed as to what to do in business promotion and advertising. Waste elimination and economy are paramount thoughts. With some it is a question whether a cessation of activity—especially the kind that costs money—is an economy. Unwise economy is not economy—but read the story.—Editor.

BY RAY W. SHERMAN

"OH—I don't know, Reilly, but I think we'll pare down expenses in a lot of places to get through this war in the best possible condition," said Jim the Sales Manager, as he looked gloomily across his big flat-topped desk in the Callawassa factory in Sayanna.

"Keeping expenses down surely is the right dope," agreed Reilly, the dealer in Callawassa and the company's star outside performer.

"For one thing: I think we'll cut our advertising away down, and I think we'll sort of drop out of sight until things get normal again. We——"

"WHAT DO YOU MEAN? Drop out of sight?" demanded the dealer. "Are you going to admit you're dead for a time? And after you have spent years trying to sell the public on the fact that you are alive?"

"Well——," and Jim made one of those combination shrug-and-spread-eagle gestures, "what's a fellow going to do? Our business is off. Your business is off. The factory is taking on war contracts. We haven't much to sell, and if we did have we couldn't sell it. What's the use?"

Whereupon Reilly got mad.

Waster of Reputation

He hitched around in his chair—and said nothing.

Then he hitched around the other way—and began:

"Jim!" Reilly slapped the desk on which he had signed many contracts. "You are a fine piece of cheese. That's my text. Now let me prove it.

"If you were to take your bank roll out and throw it in the river it would be your own business. But when you try to throw the Sennett company into the discard it comes pretty near being some of my business. To start with, I own a few shares of stock, and, furthermore, I am one of your best dealers and my whole living is tied up with this company. When you want to cut all that down and kill it I rise in protest."

"What do you mean?"

"Just this: Of all times this is NOT the time to be a quitter. One trouble with America to-day is that we have too damned many quitters. At a time when we need bigger things done than we have ever done before about all we seem to be able to get is men whose idea of solving a difficulty is to cut something off. And here you go just like all the rest of them—only worse. Most people want to cut off some one else's head but you want to cut off your own—and with it will go mine and the heads of thousands of others.

"You have spent years and thousands of dollars building a business—and your business is nothing in the world except good-will. Without your good-will you would have to shut up shop to-morrow morning. Your good-will is nothing but the assurance that the old customer will come back to the old place to buy cars, and that his buying will influence others to do the same. The public believes in you. It has become accustomed to recognizing you as a factor in the business world.

"Now what is it you propose to do? You want to say to the public: We have been telling you for years that we amounted to something—but that applied only to normal times. To-day we don't amount to much and we prefer that you transfer your allegiance to some other company.

"You haul down the flag and quit! You take down the sign from the door. If this is the end of the world that is all right—but it isn't. It is just a temporary fuss to squelch a fool German nut. After that we'll go along all right again—but where will you be? Dead! Buried! Gone!

"You have two ways of keeping yourself before the public. One way is through your product. The Sennett car is seen on the street. It becomes known through its lines. It goes everywhere. People accept it as a good product because it is bought. The other way is through your advertising and publicity. People read your ads and your newspaper stories and after a while they begin to believe what you say. You acquire good-will.

The Only Chance

"And now—the war has affected business. Your sales are off. This means of keeping yourself before the public has been lessened by circumstances. Your only remaining method of keeping yourself before the public is advertising and publicity. The only thing left is the sign over the door—and you're going to tear that down. Of all times this is the one time when you should keep on advertising.

"Maybe you can't advertise cars. But you can run advertising. You can talk to the great public on any subject you choose. You can advertise Liberty bonds. You can plead for patriotism. You can help save the wheat. You can work for stability in the public mind. You can build an enormous good-will for yourself and also for the industry you represent.

"Then what? After the war the people will flock back into the motor car market. They will want cars. There will be a big demand. And where are these buyers going to go? Will they expect to get cars from a company that has gone out of business? Would you expect to find an Elmore two-cycle car if you went down the row? Certainly not! It's dead because of no product and no advertising. And if you did see an Elmore salesroom wouldn't you feel risky about going in and buying one? Wouldn't you feel as though someone were trying to slip something over on you?

"That is something like the way people will feel about your own car if you once take the sign down from the door. We've got to keep it there, Jim! Maybe we shall have to set aside a lump sum for war-time advertising and then use whatever copy we find fits best. But we can't afford to quit. We have spent too much money and effort building this thing to let it fall down. It would cost more to rebuild than we can save by failing to hold it up.

The Sign Stays

"As for me, the Reilly sign stays on the door. I am going to run a consistent advertising campaign in my newspapers no matter if it wipes out all my profits. Even if I have to get a living from my service station repairing cars and filing saws, and selling farm lighting outfits and trailers, I'm going to keep the name of Reilly and the Sennett car before the public. I'm going to set aside a sum for advertising and say something if it's nothing but 'to hell with Germany.'

"I'm going to keep the sign over the door. Some day I'm going to need it again. It has cost me, I estimate, $50,000 to make that sign what it is. It is worth that much—and more. And $50,000 at 5 per cent is $2,500 a year. Can't I afford to spend the interest on my investment in protecting the investment?"

"Bring back those letters I wrote last night," said Jim, as the young lady came in answer to his buzzer call.

"Reilly," he said, "I've been a short-sighted jellyfish. I was going to lie down. Shriveled business can't fight a war.

"*The sign stays.*

"The old Sennett Motor Car Co. may not be hitting on all six right now—but she's hitting. And she's going to hit some more. I never realized what I was doing. I sort of thought—I—ah—I don't know what I thought."

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Repairshop Shortcuts

From The Motor World Roadman

(No. 1493) STORAGE BATTERY BOOSTER

In winter, decreased battery capacity, increased friction resistance and difficult carburetion all combine to make starting difficult, and occasionally a battery becomes so low it will not crank the engine. In such instances, as an emergency aid, 4 dry cells, connected in series across the battery terminals, providing it be 6-volt, will provide sufficient power for cranking. The wire used as cell connectors, and to connect the 4 cells to the storage battery should be about No. 14 or larger.—Alvin Tresselt, Electric Starter Co., Passaic, N. J.

(No. 1494) REAR AXLE STAND

Durability and easy constructions are features of this rear axle stand, in addition to the essential fact that it permits the work to be done much more efficiently. Notched steel endplates are cut from steel following the pattern shown, so that a small amount of materials is wasted. These plates are bolted to wooden uprights and hold the rear axle in a horizontal position through the truss rod, which is caught in the base of the groove.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit, Mich.

(No. 1495) MOTOR HOIST TONGS

The usual method of removing or placing an engine in the frame of a car is to remove a spark plug and screw a steel eye in for attachment of the chain hoisting hook. A much quicker method is to use steel tongs that grasp the cylinder at the rear just beneath the water jacket, the weight of the engine applying a pressure on the front hook, likewise caught beneath the water jacket and locking it securely in place. These tongs may be applied or removed in an instant and possess the additional advantage of holding the engine in a horizontal position.—Maxwell Motor Co., Detroit, Mich.

(No. 1496) SIMPLE FRONT WHEEL GAGE

A gage for measuring the distance between the front wheels can be easily made from two ordinary yard measures, fastened together by two sliding clips. These clips should be made of spring brass, the two extensions being bent slightly in so as to exert a pressure between the two measures. One side of one of the rules should be planed off and re-marked so that the reading can be made direct in inches without the necessity of adding the distance registered on one rule to the other. The clips are fastened by short screws, one to each rule.—Chas. Field, Wymore, Neb.

(No. 1497) AIR PUMP ECCENTRIC WRENCH

The air pump eccentric on the Packard is not easily accessible and hence common wrenches may only be used with difficulty. A short wrench, however, may be inserted behind the eccentric and a notched piece of pipe slipped over it and used to turn it from place.—Packard Motor Car Cc., Detroit.

(No. 1498) STORAGE BATTERY HANDLE

It is easier to drag a storage battery from place to place in the shop than to carry it, because of the extreme weight. This may be most readily done by means of a steel handle hooked at one end to catch into the handle of the battery. Of course, care should be taken not to abuse the battery when transferring it in this manner.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

(No. 1499) PISTON JIG

New pistons when received from the factory are usually over-size and require a certain amount of grinding and fitting before they can be used. This may be done on lathe, providing a piston jig is at hand. Such a jig is a round piece of stock drilled and tapped to fit over the driving center and turned down at the opposite end to carry any one of several snap rings as required by the various-sized pistons. The piston to be fitted is slipped over this ring and held in place by the tale center, and is automatically centered without further work.—C. F. Mohr, Pierce-Arrow Service Station, Pittsburgh.

(No. 1500) MAGNETO REMAGNETIZER

The feature of this remagnetizer is that one of the poles is adjustable and may be set so that any magneto may be accommodated. The pole piece is divided into two parts, one L-shaped and the other I-shaped, each wound with about 11 lb. of No. 20 magneto wire. Re-chargers operate from 110 volts D.C. line, one minute usually being required to saturate the magneto to a point where it can lift about 15 lb.—Dodge Brothers Service Station, Pittsburgh.

(No. 1501) SHOP FLOOR TRAYS

Much of the grease, oil and dirt commonly supposed necessary in a repairshop can be eliminated by the use of several shallow sheet metal trays. These trays are about 4 ft. wide and 5 ft. long and are placed beneath the car whenever the engine, base clutch, gearbox, etc., are being drained, flushed or lubricated. These trays are also used when the springs are being oiled, the method being to force the leaves open and shoot oil between them with an oil gun.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

Plenty of Copper for War Work

WASHINGTON, D. C., Dec. 17—A number of copper producers meeting with the War Industries Board have assured the members that they are and will continue to be able to meet the government's copper requirements. Labor conditions were said to be much improved and general satisfaction was expressed with the distribution system. Rising cost of production was reported, but prices were not discussed and no formal request for an increase was made when revision of present prices is taken up. Among those present were: Joseph Glendenning, American Smelting & Refining Co.; C. F. Kelly, Anaconda Co.; R. L. Agassiz and James McNaughton, Calumet & Hecla; P. Todd, Quincy; T. Wolfson, United Metals; N. L. Amster, Shannon Co.

Trumansburg Out for Cash

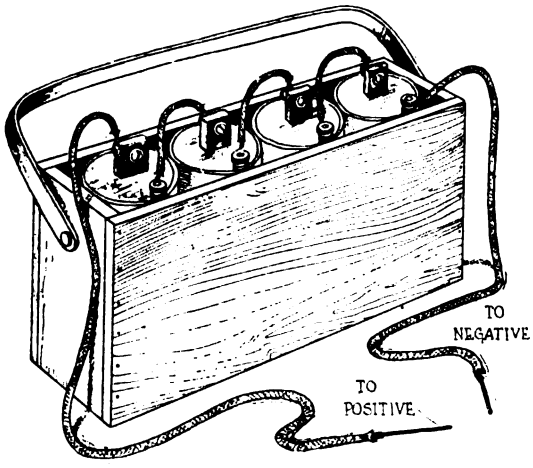
TRUMANSBURG, N. Y., Dec. 20—Dealers and garages here will place their business on a strictly cash basis commencing Jan. 1. Those who have entered into the agreement are Covert & Tunison, C. S. Norton, Lanning Moore & Son of Trumansburg, Fowler, Bloomer & Co. and N. B. Stetsel of Interlaken.

Scrap Metal Prices

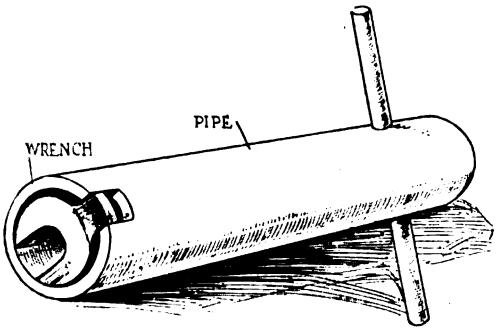
NEW YORK, Dec. 20—Following are the prices paid by New York dealers for scrap metal during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible	22.00
Copper, heavy and wire	21.00
Copper, light and bottoms	19.00 to 19.50
Brass, heavy	14.25 to 14.50
Brass, light	10.50 to 10.75
Heavy machine composition	20.00 to 21.00
No. 1 yellow brass turnings	14.00 to 14.25
No. 1 red brass or composition turnings	17.50
Lead, heavy	5.50
Lead, tea	4.00
Zinc	5.00

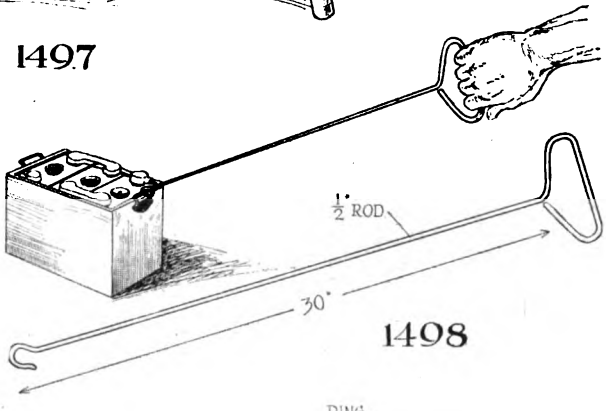
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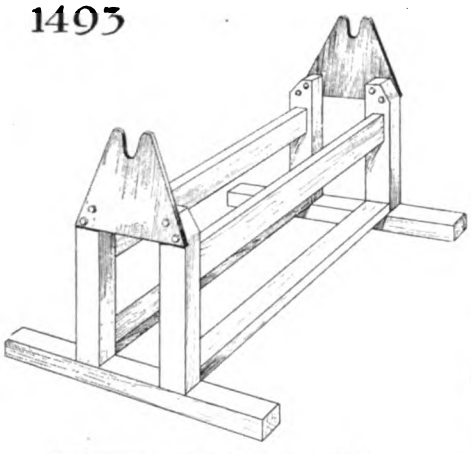
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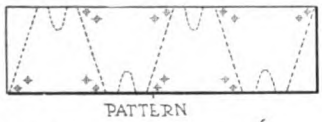


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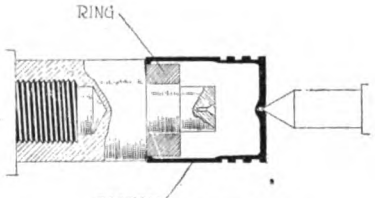


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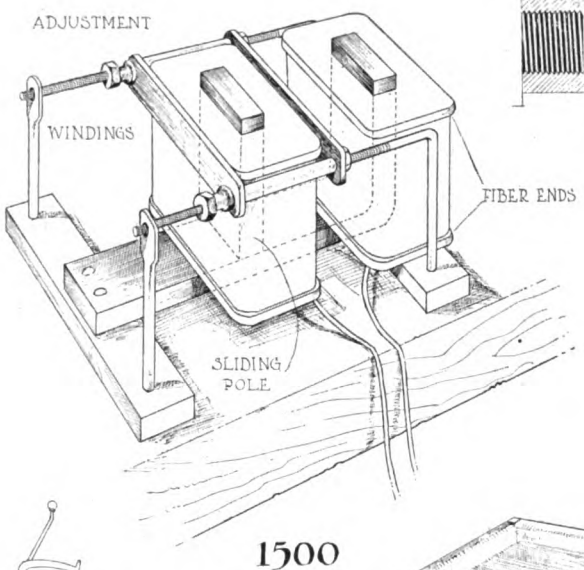




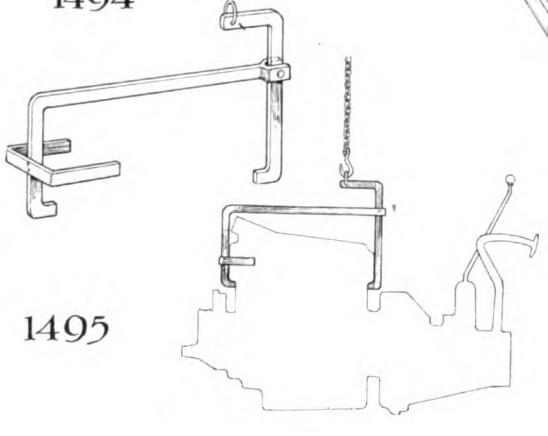
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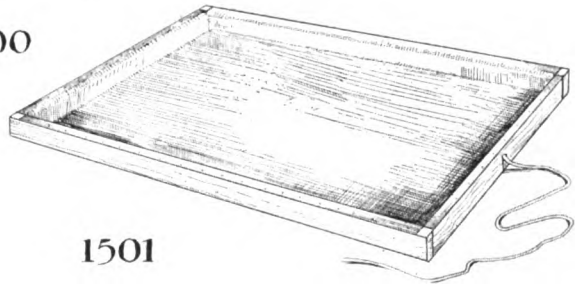
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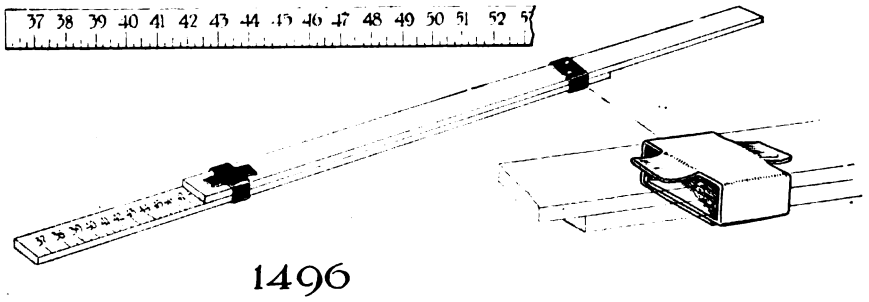
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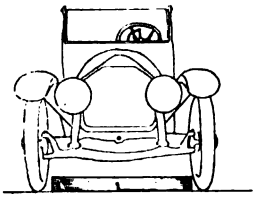
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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Go After Unpaid Accounts

NOW that New Year and the slack season are approaching, dealers should go after the accounts which remain outstanding on their books. I am convinced that the dealers who give the proper thought and attention to the letters they send out to delinquent customers will succeed in collecting a good majority of the accounts due them.

There are a number of reasons why a customer may fail to pay the dealer when the latter sends him a bill.

In the first place he may be perfectly willing to pay and really intends to do so, but fails through sheer neglect.

In the second place he may be perfectly willing to pay but absolutely unable to do so.

Then again, he may be unwilling to pay because he feels that he has been overcharged. Lastly he may be unwilling to pay just because he makes it a practice never to pay his bills until he is forced to do so.

If a dealer should write the same letter to the men in each of these four classes, the chances are that the checks he would receive would all be from people in one class—that is, the class his letter appealed to. The customers in the other classes would simply ignore the dealer's letter because it contained no special appeal which would fit their own particular case.

Let a dealer jog the memory of the man who fails to pay through neglect—give an opportunity to pay small amounts on account to the man who is financially unable to pay—offer to meet and frankly discuss the grievance of the man who thinks he has been overcharged and threaten to put his claim against the dishonest debtor in the hands of an attorney, and the chances are that he will receive checks not only from customers in any one particular class, but from a fair proportion of customers in each of the above classes.

The dealer can determine the practical value of endeavoring to find out why a man will not pay his debts, and then writing a letter to fit the man's particular case if he will but put himself in the position of the customer for a moment. If the dealer were a dissatisfied customer, would he answer the kind of a letter that should be sent to the neglectful one? If he were an outright beat, would he answer the kind of a letter that should be sent to the neglectful debtor? Of course not!

Make each letter you write appeal to the man to whom you write it and your money will come in without it being necessary to write letter after letter as you are doing now. This method has been tested and tried out and I have never seen it fail yet. Examples of the above-mentioned letters follow:

Letter No. 1—To Neglectful Debtor

Dear Sir:

On going over our accounts we find an item of $50.00 charged against you which became due July 1st. We appreciate the fact that this matter was probably overlooked in the rush of modern business.

If you will let us have your check we shall be glad to close this account, as it will spare us the necessity of troubling you further.

Yours very truly,

Letter No. 2—To Debtor with a Grievance

Dear Sir:

On going over our books we find under your account a balance of $50.00 due since July 1st, 1917. Inasmuch as the work was done so long ago, you may not now be familiar with its details. If you have any doubt as to the amount or accuracy of the bill we will be pleased to get in touch with you and explain it, because we are making a very earnest effort to do our work right and to make our prices right.

Occasionally a customer does not understand why certain jobs require so much time, or why some other item enters into the account. In such a case we gladly go over all these things with him. May we have your check, or if the account seems like ancient history, call in person?

Very truly yours,

Letter No. 3—To Debtor of Little Means

My dear Mr. Jones:

Mr. Smith, our bookkeeper, has called my attention to the fact that he has sent you several statements relating to the balance of $50.00 due us since July, but has received no reply.

I am writing you personally because we want to co-operate with you in every way we can so if you cannot send us a check, stop in and let us see if we cannot find some mutually satisfactory way of adjusting this matter.

Letter No. 4—To the "Beat"

Dear Sir:

We beg to advise you that the balance of $50.00 due us on July 1st, 1917, is still unpaid.

We intend to collect this account, and if you do not see your way clear to let us have your check immediately we are prepared to have suit instituted for the full amount of this claim, interest and costs. By sending your check at once you will dispense with this trouble and expense which, of course, will ultimately be borne by you.

If a dealer waits longer than the number of years set out opposite the name of the State where he resides, his account will be barred by the Statute of Limitations, and he will not be able to collect it unless the debtor writes and acknowledges the claim and promises to pay it, in which event the dealer's claim for bringing suit will be renewed for a like period.

When Your Bill Becomes Dead

State	Years
Alabama	3
Arizona	3
Arkansas	3
California	2 or 4
Colorado	6
Connecticut	6
Delaware	3
Dist. of Col.	3
Florida	3
Georgia	4
Idaho	4
Illinois	5
Indiana	6
Iowa	5
Kansas	3
Kentucky	2 or 5
Louisiana	3
Maine	6
Maryland	3
Massachusetts	6
Michigan	6
Minnesota	6
Mississippi	3
Missouri	5
Montana	5
Nebraska	4
Nevada	4
New Hampshire	6
New Jersey	6
New Mexico	4
New York	6
North Carolina	3
North Dakota	6
Ohio	6
Oklahoma	3
Oregon	6
Pennsylvania	6
Rhode Island	6
South Carolina	6
South Dakota	6
Tennessee	6
Texas	2
Utah	4
Vermont	6
Virginia	3
Washington	3
West Virginia	5
Wisconsin	6
Wyoming	3

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The RETAIL NEWS

SOUTHWEST

John Coulson, Arkansas City, Kan., has sold his interest in the Penrose-Coulson Automobile Repairshop to Roy Inglehart.

Jim Figgins and Irve Shumate, Moberly, Mo., have opened an accessory shop.

William Edsworthy, Moberly, Mo., has bought the repairshop of Jim Figgins.

Oklahoma Saxon Motor Co., Oklahoma City, has bought the Apperson Motor Sales Co., and has moved to 604 North Broadway.

W. L. Davis Motor Sales Co., and the Walton-Parks Motor Co., Oklahoma City, have leased the building at 608 North Broadway as a salesroom.

B. M. Brady Motor Car Co., Norman, Okla., has opened a main office at the McIntire Garage.

C. W. Darrow, Oklahoma City, has established a branch of the Beacon Tire and Rubber Co. at 25 North Dewey Street.

S. R. Snow, Girard, Kan., has bought the Conder interest in Snow & Conder.

H. C. Mahon and F. W. Coughenour, Mound City, Kan., have bought the McSwan Garage and Machineshop.

J. E. Gillett, Washington, Kan., has sold his interest in Gillett & Rust to Rust.

W. J. Sanford, Beloit, Kan., has sold his garage to L. N. Hartman.

K. C. Jones, Versailles, Mo., has moved his accessory shop to the building vacated by Crewson & Petty.

Knight Tire and Rubber Co., Kansas City, has been incorporated with a capital of $2000 by C. W. Airhart, R. F. Rows and V. Sanfield.

Stapleton Motor Co., Oklahoma City, has been incorporated with a capital of $100,000 by L. B. Skelton, M. C. Skelton and Earl M. Stapleton.

Beacon Tire & Rubber Co., Oklahoma City, has been incorporated with a capital of $5000 by C. W. Darrow, W. L. Darrow and I. L. Scott.

Wall Automobile Co., Oklahoma City, has been incorporated with a capital of $10,000.

Jones Motor Car Co., Wichita, Kan., has increased its capital from $500,000 to $1,500,000.

Stradley & Joy, Caney, Kan., have bought the Wall Garage.

E. D. Ackerman, Cherryvale, Kan., has bought the garage of Chester Francis.

Floyd Barrick, Coffeyville, Kan., has bought his partner's interest in the Barrick & Barnett Garage.

Long Bros., Hunter, Kan., have bought the garage of R. L. Luckey.

A. L. Waterman, Marion, Kan., has bought the Winkley Garage.

Ike Braken & Sons, Snyder, Okla., have bought the garage of B. A. Watson.

J. O. Dodson, Shattuck, Okla., have bought the garage of Homoky & Veltum.

W. C. Cecil, Marietta, Okla., has opened a repairshop at the Townsend Wagon Yard.

E. L. Miller, Lindsay, Okla., has opened a vulcanizing plant.

John Dean and R. C. Underwood, Ryan, Okla., have bought the Palace Garage from Dean & McReynolds.

Charles Riley, Coweta, Okla., has opened a general repairshop.

Gunn Motor Co., Poteau, Okla., has moved to the building now occupied by the Hughes Motor Co.

Stinson Motor Car Co., Little Rock, will open salesrooms in Benton, Ark.

E. M. Rowe Co., Little Rock, has taken over the business of the Arkansas Buick Co.

Ralph Sidenstricker, Moberly, Mo., has bought an interest in the Goddard & White Garage.

C. J. Smith, McKinney, Tex., has sold his garage and Ford Agency to W. B. Jackson & Co., Waxahachie.

Arthur Stark, Burnet, Tex., has sold the Universal Garage to Luke Hearn.

Willey Vulcanizing Machine Co., Battle Creek, will open a $20,000 vulcanizing plant in Dallas.

Doan Tire & Rubber Co., Wichita, Kan., has opened a pneumatic tire repairshop at 117 N. Emporia.

Walter Schade, Manhattan, Kan., has moved his repairshop from the Blue Valley Garage to the Whitelock Garage.

Stradley & Joy, Caney, Kan., have taken charge of the Wall Auto Garage.

Chas. L. Guerin, Jetmore, Kan., has opened a repairshop in the Guthrie Building.

Roy Knight, Stockton, Kan., has bought the Stone Garage from G. A. Probasco.

Clifford Jerome, Goff, Kan., has sold the Goff White Way Garage to Clyde Thoren, Westmoreland.

New Garages

C. O. Williams.....Chickasha, Okla.
Dorsey Keene.....Forgan, Okla.
Weddle Brothers.....Allendale, Mo.
Schultz & Gantner.....Chillicothe, Mo.
Bert Garwitz.....Licking, Mo.
J. H. Whittle.....Golden City, Mo.
Independent Motor Co.....Manhattan, Kan.
A. D. Trim.....Iola, Kan.
E. W. Davis.....Merrill, Kan.
Ed Parker.....Fort Scott, Kan.
Walker & Grant.....Arkansas City, Kan.
C. F. Anderson.....Salina, Kan.
H. Lindsey.....Iola, Kan.
R. G. Larzelere.....Troy, Kan.
Mitchell & Ottinger.....Valley Falls, Kan.
Fire-Proof Garage.....Perry, Okla.
Will Webster.....Junction City, Kan.

PACIFIC COAST

Ed Hoegemann and Ernest Hoegemann have opened a tire store at 215 N. Eldorado Street, Stockton, Cal.

J. N. Valck and J. E. Bowers have bought the Pratt Vulcanizing Co., Stockton, Cal.

E. A. Clause has bought the interest of W. B. McCarty in the Tresher-McCarty Co. The vulcanizing plant has moved to larger quarters.

J. C. Skinner, Packard and Reo distributer, Stockton, Cal., has moved to a new building. The repair shop is in the extreme rear, and occupies 5000 sq. ft. of floorspace.

W. L. Maxwell, formerly with the Guarantee Ignition and Battery Co., Stockton, Cal., has organized the W. L. Maxwell Co., an electrical service station.

W. J. Young and W. F. Hailey have organized the Auto Exchange, Inc., Stockton, Cal., and have secured the agency of the Stutz, Fiat, McFarlane and Marion.

S. E. Berkley has become sole owner of the Tourist Garage, Stockton.

McDonald and Tobin have opened the Savage Tire Service Station, 345 E. Weber Avenue, Stockton.

E. White, formerly Mitchell distributer for Sacramento, has organized the Sacramento Valley Sales Co., and will handle the Oakland and Davis cars and International Harvester trucks. Salesrooms and service station have been erected.

L. J. Clark has organized the Consumers' Tire Co. at 1312 N. Street, Sacramento, distributer of the Franklin and Davis cars.

W. I. Elliott Co., Sacramento, have erected a new building at N and Fourteenth Streets.

G. P. Louthain and Henry King have bought the Lincoln Highway Garage, N and Fifteenth Streets, Sacramento, and will handle the Stutz and Velie.

Miller Auto Co., Dodge dealer, Sacramento, is enlarging its salesrooms.

Reed Tire Co., Sacramento, has opened a branch at Market and San Joaquin Streets, Stockton. W. H. Hill is in charge.

Sellenger & Sons, owners of the Travelers' Garage, Sacramento, have opened salesrooms at 1327 K Street for the Saxon.

E. O. Putnam has opened an accessory and tire store at 1013 J Street, Sacramento.

A. H. De Gaston has bought the garage at 1210 J Street, Sacramento and will handle the Mitchell.

M. L. Hamilton & Son have bought the Oak Park Garage, Sacramento.

Savage Tire & Supply Co. has opened at 1329 J Street, Sacramento. A vulcanizing plant is being installed.

Graham & Lamus Co., Owen-Magnetic dealer, has moved to 711 M Street, Sacramento, and is installing electrical equipment.

Auto Tire Exchange, Sacramento, has moved to 1209 J Street.

K. Tenga, a Japanese merchant, has bought the O. K. Garage, 222 S. Center Street, Stockton.

California Auto Garage, Stockton, has been bought by G. Garbeth and E. Hartig and is now styled G. & H. Garage.

G. L. Reichmann has opened a vulcanizing plant and accessory store at 138 South California Street, Stockton.

J. J. Jacobs Motor Co., Sacramento, distributer of the Studebaker, has erected a concrete building at Fifteenth and K Streets.

Goodrich, Ballard and House, Ford dealers, have erected a new building at Seventh and M Streets, Sacramento.

David Danziger and William Gilmore have opened a vulcanizing plant at 1100 Fourth Street, San Rafael, Cal., under the style Dan's Tire Shop.

M. & S. Tire Shop has moved to 627 Van Ness Avenue, San Francisco.

F. G. Conn has bought the garage at 332 Seventh Street, Richmond, Cal.

H. Patterson, Hudson and Republic Truck distributer, Stockton, has remodeled the building at Lindsey Avenue and Eldorado Streets as a used car department.

H. C. Flanagan has bought an interest in Nelson & Co., a repair shop at 680 Valencia Street, San Francisco.

Anderson & Londsen have opened a machine shop at 1445 Valencia Street, San Francisco.

Emerick & Watson, owners of the Lomita Garage, South San Francisco, have bought the South City Garage.

J. B. Torrence and W. A. Himmelmann have bought the West Side Garage, Point Richmond, Cal.

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H. V. Carter Motor Co., Marion-Handley distributer, has moved to 718 Van Ness Avenue, San Francisco.

Hoelle Rubber Sales Co., San Francisco, has bought J. L. Ahlers & Co., 476 Golden Gate Avenue.

Tatton Bros. have opened a vulcanizing shop at 225 East Channel Street, Stockton.

Jules Levy, Ford dealer, has erected a new building at Fourth and F Streets, San Francisco.

E. A. Cornely, Inc., has taken over the business of E. A. Cornely, 1445 Bush Street, San Francisco.

Stockton Auto Ignition Co., 122 E. Miner Avenue, Stockton, has been sold. It will be managed by C. E. Moorehead.

Doane Auto Supply Co., Stockton, has been bought by R. L. Quisenberry and F. Journeay and will be conducted under the style California Auto Supply Co.

Al Fogel and Lester Weaver, Tacoma, have purchased the Tacoma Avenue Auto Laundry.

Wever Motor Car Co., Tacoma, has installed an ambulance service station.

New Garages

Kenyon & Reimers,
118 N. San Joaquin Street, Stockton
Sunset Motor Co.....Seattle

NORTHWEST

Minnesota Machine & Foundry Co., Rose Hill Township, Minn., has succeeded the Brasie Motor Car Co., Minneapolis.

Harper Motor Co., Minneapolis, has bought the Club Garage at 219 Sixth Street, S.

Myhre Bros., Fargo, have leased a building at 621 N. P. Avenue as a salesroom for the Grant.

C. W. Thompson Auto Co., Sioux Falls, S. D., has been incorporated for $200,000 by C. W. Thompson, C. W. Pier, P. P. Thompson.

Knapp Brown & Co., Mitchell, S. D., has bought the Ellis Willard Service Station.

Minneapolis Auto Laundry & Service Co., 2947 Lyndale Avenue, S., Minneapolis, is now styled American Motor Co.

Pollard Motor Co., 2605 Nicollet Avenue, Minneapolis, has bought the Marshall Motor Co.

Acme Truck Sales Co., 917 Hennepin Avenue, Minneapolis, is now styled Bherm-McMullen Co.

Earl Ames, Aitkin, Minn., has bought the Aitkin Garage from C. A. Jacobson.

Nelson & Erickson, Willmar, Minn., have sold their garage to Handy & Lewis.

B. A. Stokes, Havre, Mont., has bought the Wentworth Garage, 615 Second Street.

B. Martinson and Charles Wilkenson, Ruthton, Minn., have bought the L. H. Lawrence Garage.

Ernest Wickstrom, Ogilvie, Minn., has bought the V. E. Holmgren Garage business.

J. W. Mowbray, Wales, N. D., has sold his automobile and garage business to Otto Platz, Calvin, N. D.

C. J. Steel, Ivanhoe, Minn., has bought the Arco Garage from Faulda & Danielson.

H. P. Fesenmaier, New Ulm, Minn., has bought the Morton Garage at Morton, Minn., from Frank Fesemaier.

A. A. Harris, Triumph, Minn., has bought interests of Ross B. Hall in the Triumph Motor Co.

A. S. Johnson, Dillon, Mont., has sold his automobile business to Campbell & Leonard, Butte.

Anderson Bros., Walcott, N. D., have bought the R. N. Lee Garage.

Motor Service Co., Chaska, Minn., has leased its garage to Mittelstadt & Huemoller, Fairmont, Minn.

P. O. Peterson, Lake Wilson, Minn., has bought the interest of Alex McCauley in his garage.

Handy & Lewis, Spicer, Minn., has bought the Nelson & Erickson Garage.

John Pattee, Omaha, has bought the Glenwood Auto Co., Glenwood, Iowa.

Julius Kohl, North Liberty, Iowa, has sold his garage.

W. E. Carr and F. J. Ryan, Clarion, Iowa, have bought the Nagle Garage.

Bert Orden, Audubon, Iowa, has bought the vulcanizing business of Fred Peterson.

Munson Brothers, Milford, Iowa, have sold their business to A. Spangle.

Albert Stoltz, Preston, Iowa, has bought the Preston Auto Sales Co.

John Bartholomew, Algona, Iowa, has withdrawn from the John Lamuth Auto Co. The business will be conducted by Mr. Lemuth.

E. A. Smart, Lewis, Iowa, has bought the Kuntz Auto Co.

New Garages

H. Trosky.....Elk Point, S. D.
City of Minneapolis.....Minneapolis
Daly Garage.....Elk River, Minn.
Michaud & Isenberg.....Lafayette, Minn.
Fields & Skjonsby (addition)..Maddock, N. D.
Bert. Young (repairshop)..Woonsocket, S. D.
Nelson Auto Co.....Benson, Minn.
Pegg Garage.....Valle City, N. D.
M. E. Miller...Upton Avenue, S., Minneapolis
Ostreim & Long.....Kensal, N. D.
A. N. Parizek.....Grundy Center, Iowa
Standard Oil Co. (filling station),
Osage, Iowa
Alf Hinegard.....Toledo, Iowa
Sheets and Harter.....Mt. Ayr, Iowa
Boyenga Brothers.....Grundy Center, Iowa
I. L. Lavendar.....Webster City, Iowa
Smith and Hobson.....Whittier, Iowa

MOUNTAIN

New Garages

J. A. Pitman.....Piboco, Ida.

CANADA

Albert Garage.....Regina, Sask.
Parkville Garage, Ltd.....Parkville, B. C.

MIDDLE WEST

Chandler Co., Grand Rapids, has moved to 526 Monroe Avenue, N. W.

Youngstown Auto Top Co., Youngstown, has opened at 655 Market Street and is installing equipment for renewing tops, upholstery, etc.

Mohawk Rubber Co., Akron, Ohio, has opened a branch at 1436 Van Ness Avenue, San Francisco. Geo. R. Cowden is manager.

J. E. Strater and Joseph J. Swatek, Cleveland, will handle supplies and conduct a service station at 2060 Euclid Avenue.

Stewart Truck Co. has opened a branch at 118 North Madison Street, Rockford, Ill., with W. K. Beck as manager.

Motor Car Co., Pontiac, Ill., has opened branch houses at Chenoa and Fairbury, Ill.

Washington Motor Car Co., Madison, Wis., has taken over the repairshop located in the basement of its service building and garage.

Langlade Motor Car Co., Antigo, Wis., has been purchased by A. W. Roegner and F. P. Pugh, Oshkosh, Wis.

New Garages

J. C. Mellwraith.....Anderson, Ill.
Barry & Co.....Henry, Ill.
T. J. Baldwin.....Forrest, Ill.
B. Morrison.....Flanagan, Ill.
W. H. Thompson & Son.....Piper City, Ill.
Carson & Healy.....Gibson City, Ill.
O. L. Langellier Motor Car Co....Kenney, Ill.
J. L. Long.....Bellflower, Ill.
Pontiac Motor Car Co.....Fairbury, Ill.
Pontiac Motor Car Co.....Chenoa, Ill.
Brown & Son.....Lexington, Ill.
J. L. Myers.....Mansfield, Ill.
J. L. Myers.....Belleflower, Ill.
Earl Grimm.....Canton, Ill.
Horst & Strieter.....Moline, Ill.
S. R. Nowlin.....Maroa, Ill.
A. S. Johnson.....Streator, Ill.
Thompson & Redemann.....Wausaukee, Wis.
Overland Belleville Co.....Belleville, Wis.
George Breitbach.....South Milwaukee, Wis.
Dickson Motor Car Co.....West Allis, Wis.
Wegner & Son.....Bangor, Wis.
Redner Automobile Co.....Neenah, Wis.
Oneida Garage.....Rhinelander, Wis.
Central Auto Co.....West Bend, Wis.

How Better Management Built a Business

LAST year a certain dealer handling a popular car in a city of approximately 1,000,000 lost $15,000 on his service station. This year he is making money. Last year he employed eight men; this year the force numbers a manager, forty-four mechanics, two men in the stockroom and three girls.

The difference between success and failure is that formerly he did not have competent management, but most of all, he lacked facilities for taking care of his customers.

In the cramped quarters in the old shop most of the profitable work was turned away. All the big overhaul jobs, all the wrecks, all the jobs of any importance, had to be turned down because there was not room to handle them. Only the small adjustments and the gratis work and that sort of thing could be handled.

Discipline was poor. No attempt was made to sell parts at their list price, but they were sold for almost anything the stock man felt like asking.

A few customers who tipped well got excellent service; but anything was good enough for the rest.

When the new service manager took charge, who, by the way, was a man of extensive experience, the first thing he did was to find larger quarters. To some it seemed suicidal to assume a larger burden of expense when the present quarters were not making money, but the success of his policy is seen in that now he has about 50 people employed, all told. Six men do minor adjustments on the street in front of the service station all the time. About 70 cars are cared for in a day, the time varying from 2 min. to 30 min.

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The Week in Washington

WASHINGTON, Dec. 24—Each week sees developments in connection with the automotive industry in this city which indicate that there is an ever-increasing tendency to select men who are masters in their own departments and who have made good in the work they have had in hand.

In this connection the appointment of Christian Girl, president of the Standard Parts Co., Cleveland, to a new position in which he has charge of the Quartermaster's Mechanical Transport Engineering comes after Mr. Girl has made an unqualified success in his position as chairman of the Military Truck Production Board, and which chairmanship he will continue to hold in addition to his new appointment.

In his new capacity he will have complete supervision of the completion of the design of trucks and other transport engineering work which comes under the Quartermaster's department. It is understood that all problems of design for the Mechanical Transport work and all engineering problems relating to this will be in charge of Mr. Girl.

In his position as chairman of the Military Truck Production Board, Mr. Girl has had much to do—in fact nearly all to do—with the speedy production of the Class B heavy duty war truck. He has organized a department which has looked into the problem of materials, as well as many other kindred problems. Mr. Girl has done valiant service in this work and undoubtedly his new position will be handled with a similar efficient hand.

Henry Ford has broken into the Washington spotlight again in connection with the Shipping Board. He has been given permission by Edwin N. Hurly, chairman of the Shipping Board, to make a trip through the South and inspect conditions with regard to transportation, supplies of iron, fuel, and labor with the plan in view of erecting plants through the South in which standardized ships will be manufactured at the rate of six or seven a day, the plan being to use an assembly system similar in some respects to the assembly plants in the automobile industry.

The Government will throw all of its money and resources back of this movement if Ford reports that the plan is a desirable one after he has completed his investigations. Mr. Ford starts on this tour of inspection during the present week. While nothing definite is announced, it is expected that these shipbuilding activities will be largely carried on along the shore of the Gulf of Mexico.

Considerable criticism is heard in many parts of Washington concerning the widely-circulated reports of a shortage of labor. This shortage of labor, reported from many parts of the country through the daily press, has been given further circulation by the addresses of Frank E. Vanderlip in connection with his campaign on the War Saving Certificate movement.

The Department of Labor has taken notice of this and states that there is no justification for the present hysteria about the scarcity of labor, and that no industry or industries or classes of skilled or unskilled laborers fit into Mr. Vanderlip's statements. From information obtained through its employment agencies the Department declares that it does find a certain shortage of labor on what might be termed the fringe of the country, by this being meant seaports and coast districts, but that in the balance of the country an actual surplus of labor exists.

For example: The department has recently received word from Kansas City to the effect that that city could supply 200 men a day for several months, if it is necessary for labor from that section to be moved into some other sections.

The Department of Labor states that it has had similar statements from other parts of the interior of the country where there is a surplus of labor.

The chief reason ascribed by the Department of Labor, to a shortage where it does exist, is the short time allotted for the adjustment of conditions and the department believes that such conditions are being gradually remedied without radical changes.

The Department of Labor is emphatic in its denunciation of reports which have been circulated through the daily press concerning a labor shortage, and says that the cause for such hysteria is due to wrong impressions from individual cases which are magnified into national importance. The Department of Labor cites one example of this: Recently the Civil Service Department issued bulletins calling attention to labor shortage and the need of workers. When the Department of Labor investigated, it discovered that there was a call for but 150 people, most of whom had to be highly technical.

Commissions for Mechanics

NEW YORK, Dec. 23—Examination of automobile mechanics for lientenants' commissions in the Motor Mechanics' regiment of the Signal Corps, for service abroad, will be held at the Packard Motor Car Co. offices, Broadway and Sixty-first Street, Jan. 11, 12 and 13. There will be two sessions each day, from 1:30 to 5:30 p. m. and 7 to 10:30 p. m., under the direction of a board of army officers. There is urgent need for motor vehicle foremen who are all-around mechanics, qualified to do motor vehicle work, and to direct and organize men in that branch of the service. Experienced foremen over the draft age are preferred, although the most desirable age cited by the examiners is from 28 to 35 years. Applicants are requested to bring three letters of recommendation, and a letter from present employers, giving the kind of work being done, and the salary received. Applicants must be American born or naturalized citizens. Men under 28 years will probably not receive commissions, but those over that age who are accepted will receive lieutenant's commission at once. Similar examinations will be held to-morrow in Detroit. They will also be held in Indianapolis, Detroit, Toledo, Cleveland, Boston and Philadelphia this month and the first two weeks of January.

Convention Hall for K. C. Show

KANSAS CITY, Dec. 20—The Kansas City automobile show will go back to Convention Hall for its 1918 show, Feb. 11-16. The arena floor, the lobbies and the arcades of the ground floor of the hall will be used for car display, and a balcony will be erected extending over first balcony seats and over the boxes for more car space. Accessory exhibits will be on balconies, practically completing an entire second floor. The balconies will extend over the arena floor only so far as the edge of the spaces for the single row of cars around the arena floor, thus leaving a considerable "well," and consequently providing a chance for the visitors on the floor to observe the presence of cars above.

Kansas City Tractor Show Feb. 11-16

KANSAS CITY, Dec. 20—The third annual tractor show held under the auspices of the Kansas City Tractor Club will be held in a substantial frame building erected for the purpose, on the Union Station plaza, Kansas City, February 11-16, 1918. The location is the same as last year, when the show was held in a tent, the interior being heated by salamanders. The erection of a frame building will provide opportunity for more adequate and pleasanter heating, which will be by steam or hot air from furnaces. There will be a solid plank floor. With the substantial building there will also be better opportunity for decorations and for lighting, both of which features will be given special attention.

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Dealers Are Asked to Cut Down Waste

Commercial Economy Board Wants Committee of Dealers to Help Assist the Trade

WASHINGTON, Dec. 20—The automobile dealers of the country are called upon by the Government to eliminate waste in their businesses. This does not mean less business, but it does mean business at a smaller cost. It is a movement which would have been equally meritorious in peace times, but which might not derive the attention that it gets at present.

The Commercial Economy Board, whose chairman is A. W. Shaw, took the initiative in the matter and called a conference of dealers here yesterday representing various trade associations. The gathering was small and nothing was done in the way of waste eliminations and economies beyond a general discussion of the subject.

At the conclusion of the conference, Mr. Shaw asked the dealers to appoint a committee to serve as a Motor Car Dealers' War Service Committee to assist the Government in carrying out any plans which may develop in its co-operation with dealers. It is anticipated that this committee will be formed by a conference called by President George W. Browne, of the National Automobile Dealers' Association.

Those present at the meeting were: Charles M. Brown, president, and Charles A. Stewart, manager, of the New York Automobile Dealers' Association; Joseph F. Davis, president of the Chicago Automobile Trade Association; A. E. Mitzel, Canton, president of the Ohio Automobile Trade Association; John H. MacAlman, president, and John H. Johnson, of the Boston Automobile Dealers' Association; Fred H. Caley, secretary of the Cleveland Automobile Dealers' Association; F. W. A. Vesper, St. Louis, and G. D. McCutcheon, Atlanta, directors of the National Automobile Dealers' Association.

The plan contemplated by the Commercial Economy Board is similar to that which it has been operating in connection with other trades and industries with which it has been co-operating for months, namely, cutting out all waste of material, waste of labor, waste of capital, and so forth.

This chamber has been instrumental in organizing war service committees representing different industries so that when government departments desire to take up problems with any particular industry, such can be done through the war service committee representing that industry.

It will be the first duty of such a new War Service Committee representing the automobile dealers to discuss the problems of economy in merchandising automobiles and parts, and to draft a series of such economy recommendations and take them up with Shaw and his board.

At this time it is impossible to outline what such economies will consist of, but dealers will be asked to carefully study present conditions with the thought of more correctly interpreting future conditions. There would in this work be no thought of curtailment in the manufacture of automobiles or parts relating thereto, as the Commercial Economy Board is not concerned with curtailment of production or curtailment of any other phases of the industry other than economy in merchandising cars and accessories.

Rather, the plan is to have every dealer and every garageman in the country operate his business more economically. There are opportunities for more efficient use of raw materials entering into the operation of a business such as gasoline and oil, and raw stock needed in repairs.

Until the report of the dealers' War Service Committee is submitted and the Commercial Economy Board has opportunity to discuss the report, there is not any telling how thorough the field of economy can be made and how much accomplished without the single thought of curtailing the industry taking place, as such a thought is entirely foreign to the spirit of the movement.

This new War Service Committee will serve as a connecting link between the 30,000 dealers and garagemen and the government departments or committees.

It is hoped that each dealer and garageman will personally analyze his own business with this thought of further economy without restriction of business constantly in mind, and so that his methods of economy can, through the dealers' War Service Committee, be brought before the Commercial Economy Board.

Ford Tells Dealers What Used Fords Ought to Be Worth

Suggests That Dealers Pay Right Price and Not Let Profits Be Shrunk by Long Trades

DETROIT, Dec. 18—The Ford Motor Co. has determined the maximum price that should be allowed by its dealers for all used Fords taken in trade, and is telling dealers that any amount greater than that listed will be taken from their profits. To bring the amount listed, the car must be in the best possible condition, and the number of cars sold in any one instance is in no way to affect the allowance price. The following is the list, as supplied to local dealers on all Ford models:

Model	1912	1913	1914	1915	1916	1917
Touring	$85	$90	$100	$135	$150	$225
Roadster	75	80	90	125	140	215
Coupelet	...	...	...	240	285	300
Coupelet	...	(New style)		...	...	400
Sedan	...	...	...	325	375	525

That this list is altered to meet the conditions in various parts of the country is indicated by the allowance prices for used Fords published by the Baltimore dealers. The list follows, and in general will be seen to run from $10 to $50 higher than that of Detroit.

Model	1914 and earlier	1915	1916	1917
Touring	$150	$175	$190	$235
Roadster	125	150	160	200
Chassis	100	125	135	165

The allowance for various accessories common to Fords is also listed. In the case of electrical starters, the allowed price is one half the retail price of the starter, and for the other accessories, it is in general one quarter the retail price of that accessory.

The Ford figures are much lower than the resale figures in the National Used Car Market Report.

From the table, the Ford dealer is enabled to determine the value of the car, by deducting a certain amount for poor condition, and adding on the assessed value of the accessories. This is in line with the plan recommended by *Motor World*, and in addition to enabling the dealer to get the car at a price that will not lose him money, prevents harmful bidding up on the allowed price by his brother dealers.

Quincy Show Postponed

QUINCY, ILL., Dec. 18—Manager Bennett B. Bartlett announces the postponement of the automobile show that was to have been held at the State Armory Dec. 25 to 30 until February, as he has been unable to secure many of the big automobile companies' exhibits until that date. Arrangements have been made for a musical program to be given in conjunction with the show when held in February.

Convention Hall for K. C. Show

KANSAS CITY, Dec. 20—The Kansas City automobile show will go back to Convention Hall for its 1918 show, Feb. 11-16. The arena floor, the lobbies and the arcades of the ground floor of the hall will be used for car displays, and a balcony will be erected extending over first-balcony seats and over the boxes for more car space. Accessory exhibits

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will be on balconies to be built on the same level as the car exhibit balconies, practically completing an entire second floor. The balconies will extend over the arena floor only so far as the edge of the spaces for the single row of cars around the arena floor, thus leaving a considerable "well," and consequently providing a chance for the visitors on the floor to observe the presence of cars above.

Missouri Cuts Out Cut-outs

ST. LOUIS, Dec. 24—Cut-outs will not be in style on Missouri motor cars next year. Spotlights will be worn, visibly, only on country roads. All regular headlights will be moderate in intensity and worn low; number plates will be worn front and back and chauffeurs other than car owners, will wear conspicuously a numbered badge for which they will pay $1.50.

Herring Named Coal Arbiter

DES MOINES, Dec. 22—C. L. Herring, head of the Herring Motor Co., has been named coal arbiter for Des Moines by Governor Harding. Herring's duties will be to act as a mediator betwen the local fuel committee and the dealers. Within twenty-four hours of the announcement of Herring's appointment a reduction of thirty-five cents a ton for Iowa coal was announced.

Craig Out of Combined Motors

ST. LOUIS, Dec. 24—B. L. Craig, president of the Collins Vehicle Woodwork Co. and head of the newly organized Combined Motors Corp., has resigned as head of the latter company. He says that the Combined Motors Corp. has no option on the Collins plant and that this company will not enter the combine.

Wells Again Heads Louisville

LOUISVILLE, Dec. 18—At the annual meeting of the Louisville Automobile Dealers' Association yesterday, Prince Wells was elected president, W. E. Thomas, vice-president, and Philip Longest, secretary and treasurer. It was decided to discontinue preparations for the Tenth Annual Show at Louisville. The Louisville Association affiliated itself last year with the National Automobile Dealers' Association and the Show Managers' Association.

Trucks Coming from Cedar Rapids

CEDAR RAPIDS, Dec. 22—Two of the oldest carriage building plants in Cedar Rapids, the Hawkeye Carriage Works and Beck & Son have been consolidated under the firm name of the Beck-Hawkeye Motor Truck Works and in the future the plant will be devoted almost exclusively to the production of motor trucks. A stock company with a capital stock of $150,000 has been formed and already contracts have been secured which will take up the entire production for 1918. The incorporators: Martin P. Beck, president; D. A. Stoflet, secretary, and G. C. Schneider, treasurer.

Air Work Getting on Well Says H. E. Coffin

Machines Are Coming Through Nicely and Need Now Is for Men—Trans-Ocean Flight Possible

WASHINGTON, D. C., Dec. 22—Howand E. Coffin, chairman of the Aircraft Production Board, following a trip of inspection returned here extremely optimistic as regards airplane conditions. He said:

"The material conditions in airplane development are satisfactory; we now want the men to come as fast as the machines.

Every effort is being made to coordinate effort in aviation work with our allies and to reach standard types of design in the machines.

"There will unquestionably be machines built in a reasonable length of time capable of flying across the Atlantic."

Mr. Coffin stated that the many reports about defects in the Liberty engine are entirely without foundation, that the motor had met every requirement in speed and altitude efficiency under actual tests, and that the motor would stand up against those being used by allied nations and he pointed out for proof, as Motor World did in last week's issue, the fact that allied nations have already placed orders for the American engines.

He spoke also of the flying schools he recently visited and characterized them as "most inspiring sights."

"This branch of the service," he said, "is getting the highest type of Americans. Their examinations and the character of the training insures that. While there must be ample time for the present demand there must also be more for the future. In this connection young men should consider that a knowledge of engineering, mechanics or actual flying in connection with aeronautics will have a decided peace-time value. We may beat up cannon in plowshares to paraphrase an old quotation, but the airplane is here to stay and I predict its commercial development after the war will be surprising.

Fort Worth Plant for Texan

DALLAS, Dec. 20—The plant of the Texas Motor Car Association, the $2,000,000 concern organized in Dallas for the manufacture of the Texan, will be located at Fort Worth, Texas.

Construction work will begin within 30 days. At the start the plant will employ five hundred persons and expects to manufacture 20 cars daily.

Trucks Coming from Sioux City

SIOUX CITY, Dec. 20—The Hawkeye Truck Co. has been formed here with $300,000 capital to take over the business of the Hawkeye Mfg. Co. The company will manufacture trucks. Officers and stockholders in the company are: President, R. W. Bennett; vice-president, F. W. Kemp; treasurer, A. T. Bennett; secretary, L. D. Baggs.

Government Assembly Plant Near Baltimore

BALTIMORE, Dec. 24—The Bureau of Appliances and Equipment of the United States Government has purchased 91 acres of land near St. Helena, about 6 miles from here, and will at once erect an assembling plant for motor trucks for use of the Federal government.

Make Four Landover Trucks a Day

MENOMINEE, MICH., Dec. 21—The Landover Truck Co. is now in production and expects to be turning out four trucks per day in the near future.

Youngstown Dealers on Cash Basis

YOUNGSTOWN, OHIO, Dec. 13—Members of the Youngstown Automobile Dealers' Association will put their business on a strictly cash basis beginning Jan. 1. The cash basis will cover repair charges as well as sales, and will extend not only to individual customers, but also to large corporations. The Youngstown Automobile Dealers' Association represents 60 per cent of the retail business of the city.

Motor Securities

	Dec. 22, 1917. Bid.	Asked.
*Ajax Rubber Co	45	45½
*J. I. Case T. M. Co., pfd	73¼	76
Chalmers Motor Co., com	2	4
Chalmers Motor Co., pfd	—	50
*Chandler Motor Co	62	63¼
Chevrolet Motor Co	77	77½
*Fisher Body Corp., com	20	34
*Fisher Body Corp., pfd	75	85
Fisk Rubber Co., com	—	45
Fisk Rubber Co., 1st pfd	98	103
Fisk Rubber Co., 2nd pfd	60	70
Firestone Tire & Rub. Co., com.	96	98
Firestone Tire & Rub. Co., pfd.	96	98
*General Motors Co., com	91½	93
*General Motors Co., pfd	73	75
*B. F. Goodrich Co., com	34½	36
*B. F. Goodrich Co., pfd	90	93¼
Goodyear Tire & Rub. Co., com.	34½	36
Goodyear Tire & Rub. Co., pfd.	93	96
Grant Motor Car Corp	1½	3
Hupp Motor Car Corp., com	1½	2½
Hupp Motor Car Corp., pfd	72	78
International Motor Co., com	8	12
International Motor Co., 1st pfd.	30	50
International Motor Co., 2nd pfd	15	25
*Kelly-Springfield Tire Co., com	38	39
*Kelly-Springfield T. Co., 1st pfd	70	76
*Lee Rubber & Tire Corp	12	12½
*Maxwell Motor Co., Inc., com	21	22½
*Maxwell Mot. Co., Inc., 1st pfd	51	53
*Maxwell Mot. Co., Inc., 2nd pfd	19	20
Miller Rubber Co., com	130	140
Miller Rubber Co., pfd	95	98
Packard Motor Car Co., com	100	105
Packard Motor Car Co., pfd	92	96
Paige-Detroit Motor Car Co	11	12½
Peerless Truck & Motor Corp	9	13
Portage Rubber Co., com	109	111
Regal Motor Car Co., pfd	—	20
†Reo Motor Car Co	15	16
*Saxon Motor Car Corp	5½	6½
Standard Motor Cons. Co	7½	8½
Standard Parts Co	—	75
*Stewart-Warner Speed Corp	44	46
*Studebaker Corp., com	44½	45½
*Studebaker Corp., pfd	75	81
Swinehart Tire & Rubber Co	16	26
United Motors Corp	16½	16¾
*U. S. Rubber Co., com	49½	51
*U. S. Rubber Co., pfd	91½	93
*White Motor Co	34	36
*Willys-Overland Co., com	18	20
*Willys-Overland Co., pfd	68½	70

*At close Dec. 22, 1917. Listed N. Y. Stock Exchange. † Par value $10.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Julian Malcom of the city sales force of the Van Cortlandt Vehicle Corp., New York Peerless distributor, has been commissioned a first lieutenant in the motor equipment section of the Ordnance Department.

George H. McLin, formerly manager of the Tire and Accessory Department of the United States Rubber Co., Chicago, and later sales promotion manager of the Burd High Compression Ring Co., Rockford, Ill., is now manager and buyer of the automobile department of the Charles William Stores, Brooklyn, N. Y.

Sherman M. McFedries, Milwaukee, has received the commission of major in the Ordnance Officers' Reserve Corps. He went to Washington last week to take charge of a division of production of motor trucks and gun carriages.

Frank R. Bacon, president of the Cutler-Hammer Mfg. Co., Milwaukee, has received the commission of major in the Ordnance Department, and is now supervising motor truck and gun carriage production in New Haven.

N. W. Secor has been appointed traffic manager of the Olds Motor Works, Lansing.

L. D. Maxson, formerly connected with the purchasing department of the Olds Motor Works, Lansing, has been appointed purchasing agent, to succeed C. O. Miller. Miller is in Washington, on a government service board.

J. C. Matlack, former secretary and general manager of the Ajax Rubber Co., New York, has been elected president and general manager of the Globe Rubber Tire Mfg. Co., New York.

F. J. Redeman has been transferred from the Hartford branch of the Goodrich Tire & Rubber Co. to the New England district of the manufacturers' sales department. E. J. Smith, formerly manager of the Providence branch, will succeed Redeman at Hartford, while O. C. Pahline, formerly salesman in Providence, has been appointed Providence manager.

W. E. Yale, formerly with the Studebaker Corp. and Willys-Overland Co., has been appointed Michigan distributor of the Fruehauf Trailer Co., Detroit.

W. D. Stewart, acting manager of the New York branch of the Willys-Overland Co. is now branch manager.

William L. Colt, former head of the Colt-Stratton Co., New York, has been appointed Eastern Division manager of the company, with headquarters in New York.

Joseph G. Gorey has received a commission in the Automotive Products Division of the United States Army. He will probably be sent to Muncie, Ind., to inspect gearsets.

H. J. Adams, sales manager of the Garford Motor Truck Co., has been appointed as an assistant to H. L. Horning in the Automotive Products Section of the Council of National Defense.

H. C. Heffner, formerly of the wholesale department of the Standard Motor Co., Baltimore Cadillac distributer, has taken charge of the wholesale end of the Stuart Auto Co., Maryland Hupmobile distributer.

E. H. Frederick, of the sales force of the Auto Sales Co., Oldsmobile distributer, has joined the aviation corps and is at the Selfrich Aviation Field, Mt. Clement, Mich.

W. L. Jorden, formerly manager of the Hotel Belvedere and also for a time associated with the Stafford Hotel, has joined the sales force of the Baltimore branch of the Locomobile Co. of America.

Thomas A. Auld has joined the sales force of Frank Bros., Baltimore, Marathon tire distributers and accessory dealers.

T. W. Wilson, Jr., recently connected with the Standard Motor Co., Maryland Cadillac distributer, has joined the force of the Green Motor Car Co., Newark, N. J., Locomobile distributer. He will have charge of the sales in Northern and Central New Jersey.

W. E. Dugan is factory manager of the United States Motor Truck Co. He was formerly with the Selden Motor Truck Co., Rochester, N. Y.

J. Welsh is vice-president and manager of the city branch of the King Motor Car Co., at 998 Woodward Avenue, Detroit, and will assume his new duties at once. He has been sales manager of the Abbott Corp., Interstate Motor Car Co., and the Apperson.

Charles T. Bailey is assistant sales and advertising manager of the Templar Motors Corp. He was formerly with the Hal Motor Car Co.

J. W. Peterson is factory manager of the King Motor Car Co. He was formerly with Peerless, Hupp-Yeats and Nelson.

C. F. Lueder of the Bittel-Leftwich Co., St. Louis, has been appointed manager of the accessory department of that company's branch at Kansas City.

Clifford L. Turner, formerly with the C. T. Silver Motor Co., has become affiliated with the Van Cortlandt Vehicle Corp., Metropolitan distributer of Peerless cars and trucks.

We at Home Must Work Like—

When you want to go and fight—
But you've got to stay and write—
Or do whatever task that is your lot—
Maybe it's just pumping gas—
Or a-wiping up the brass—
It makes no difference what's the job you've got—
To the world you are a debtor—
Till you learn to do it better—
And turn out two jobs in the time of one—
For each man within the trench—
There's a dozen at the bench—
And we need them all to trim the bloody Hun—
If one leg is short or long—
Or they put your nose on wrong—
And perhaps they gave you only half an eye—
You may have lost your chance for fame—
But you can get there just the same—
And do your bit if you will only try—
Every car that's running right—
Helps us all to win the fight—
And a spotlight sale will help to pay a tax—
We at home must work like ——!
Do twice as much and do it well—
To speed the day that Wilhelm gets the axe.

—S. T. Williams.

Dixie Advances Prices

LOUISVILLE, Dec. 20—The Dixie Motor Car Co. has advanced its prices effective Dec. 19. New prices are touring and roadster $995, sedan $1,375.

Reo and Maxwell Get Order for 6000 Trucks

Will Make Creeper Type for Government—Reo Six Advanced; New Four Soon

LANSING, MICH., Dec. 20—The Reo Motor Car Co. and the Maxwell Motor Co. have received an order for 6000 creeper type trucks to be divided equally between the two concerns. These trucks are of the 5-ton type and are for the Government. According to R. N. Scott, general manager of Reo just returned from Washington, the Reo Motor Car Co. will be obliged to rush its work for the next 12 months both night and day, in order to keep up the manufacture of its own trucks and passenger cars. This order is one of few non-competitive contracts awarded because the two plants were well equipped for the work.

At the annual meeting of the Reo stockholders Tuesday, all directors were re-elected except R. C. Rueschaw formerly sales manager. F. H. Akers now sales manager was elected director.

The report for the year shows sales of 6494 vehicles in excess of the 1916 sales. There were 30,246 trucks and passenger cars in 1917 as compared with 23,753 in 1916. The company is 2000 cars behind in shipping orders and needs 700 freight cars for immediate shipment.

The price of the Reo six-cylinder car will be raised to $1,550 on Dec. 31, an increase of $165. An entirely new four will be announced at that time to sell for $1,225. The price of the present four is $985. J. C. Brandimore has joined Rueschaw as special factory representative of the Mitchell Motors Co.

Cars Coming from Texas

DALLAS, Dec 20—Organization of the Texas Motor Car Association with a capital of $1,000,000 and a proposed capital of $2,000,000, for the purpose of manufacturing The Texan has been completed. Factory location will be selected within the next few days and within the next few weeks work on this factory will begin. Within the next three months it is proposed to have the factory in operation. The factory is to build and put in operation twenty cars daily or 6000 cars per year. The car will sell for approximately $850. It will be a two and five-passenger car. Within a few months after operation is begun the company proposes to build trucks and tractors. Details for these plans are yet to be worked out. The company was organized under the direction of J. C. and W. H. Vernor, well known Texas automobile men. H. J. Wells, Detroit, Mich., and F. E. Crotto of Dallas are the men in charge of the direction of the car building.

More Room for Service

WABASH, IND., Dec. 20—The Service Motor Truck Co. will put up two additional buildings.

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Hartford Brings Out a New Model of Its Shock Absorber

New Swivel End Allows Better Action—Possibility of Rattle Is Reduced — Alignment Automatic

WHILE retaining the basic characteristics of previous models, the new swivel type Hartford shock absorber shows refinement of detail and the addition of an ingenious form of swivel end. The chief improvement lies in the swivel connections which are fitted to the extreme ends of the arms where the attachment is made to the frame and axle of the car.

It is the purpose of these swivel ends to allow for the perfect action of the shock absorber, without stress or strain on the end parts. With these major causes of deterioration removed, wear and possible rattles are reduced to a negligible degree. Moreover, through the swivel ends, each shock absorber automatically aligns itself to conform with the surface of the road as measured in the action of each individual spring on the car and a fine degree of control is obtained.

The center arm now carries the durable and efficient friction discs of treated wood. These are held by loose pins and encircled by a flanged ring or cover to exclude dirt and water. The side arms, with the other arm interposing, are frictionally mounted on a stud and held in solid connection by dowel pins fitting into corresponding slots in the side arms. Thus it will be seen that the center arm moves when the outer arms are held in a fixed position or vice versa. By tightening or releasing an adjusting nut, the pressure on the compensating spring against the arms and friction disks is increased or modified, as the case may be, making the shock absorber adjustable to cars of different weights.

Riveted to the end of each arm is drop forging. Driven over the stud end of this extension is a split steel spring bushing, oval in shape, which bears against the stud on two lines of its short axis. Over this stud and bushing a drop forged hardened knuckle is forced, using the smaller of the two holes in the knuckle for the extension stud. When the stud and bushing are forced into this hole, which is smaller than the oval bushing at its largest diameter, the bushing is compressed and put under tension. This takes up lost motion and compensates for wear.

The knuckle is held in position on the stud by a tightening nut, under which is a cupped spring washer that makes a tight but movable connection. A grease cup is screwed into the knuckle to provide for lubrication. In the same manner a split, spring bushing of greater dimension is mounted on the knuckle stud and forced into the larger hole in the knuckle. A cupped spring washer is added and held by a nut.

Any side sway of the car will cause the extension to turn in the small hole of the knuckle, thereby freeing the end of the shock absorber of any side pressure. Installation fittings are supplied for any make or model of car.

6000 Ford Tractors for England

DEARBORN, MICH, Dec. 20—The tractor plant of Henry Ford & Son is working night and day, with three shifts of men, turning out tractors for the English government. At present about 1400 men are employed and constant shipments are being made to England. It is expected that the English order of 6000 tractors and 1000 parts will be filled about Feb. 1, and it will be at the present rate of production increase.

Overland Building for Twin City Show

MINNEAPOLIS, Dec 20—The Twin City Automobile and Industrial Exhibition is to be held Feb. 2-9 in the Overland wholesale factory branch. This is the new name for the automobile show of the Minneapolis Automobile Trade Association.

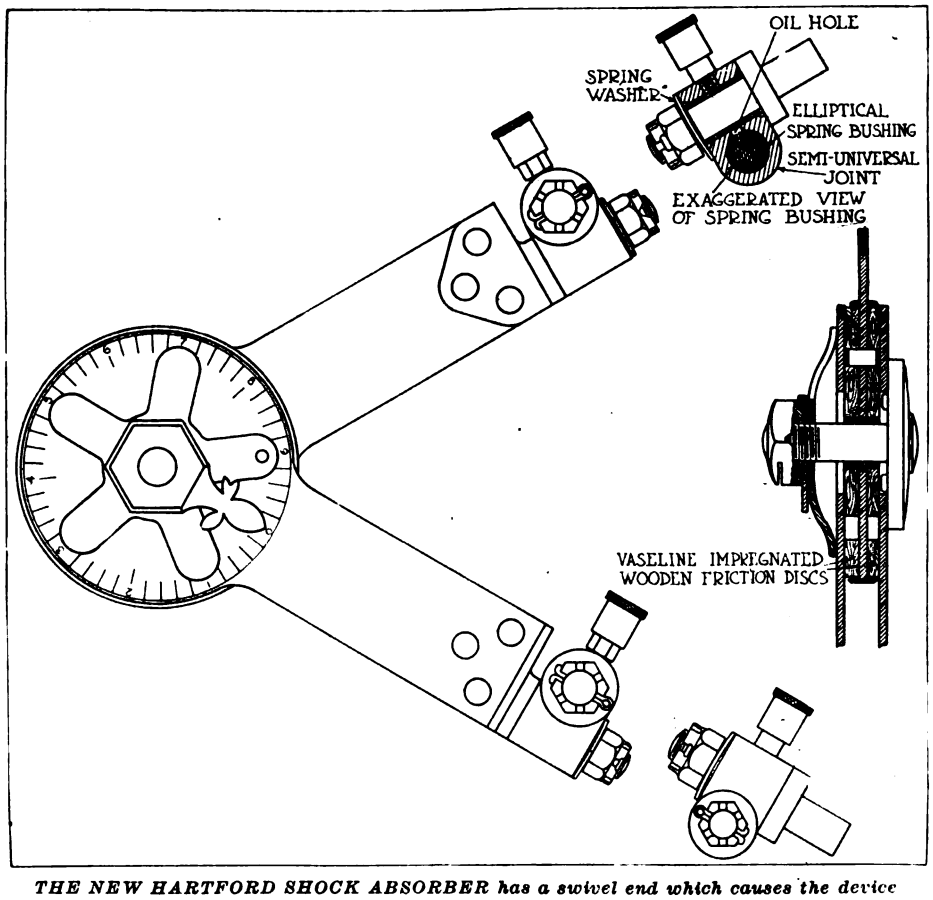
The Overland building selection settles a long-debated question since the Armory was closed recently in Minneapolis for building weakness. F. N. Coates, district manager for the Overland, who is a member of the association, came to the rescue. The building will give 200,000 sq. ft. of show space, twice as much as last year. Two or three floors of the structure will be utilized.

McGraw Service Men Convene

CHICAGO, Dec 20—The McGraw Tire & Rubber Co.'s service force held a three-day convention from Nov. 26 to 29. The policies to be effective in future work were defined. Furtherance of trade educational service was discussed to demonstrate the value of tire conservation.

Dealer Adds "Repairwomen"

ST. LOUIS, Dec 20—The De Luxe Automobile Co., Oldsmobile distributer here, will employ women in its shops beginning this week. The company recently has lost nine men through enlistments. "We lost one of our stenographers to the Government," said President Brockman, "and in seeking a successor I found that many of the applicants would welcome an opportunity to try more rigorous work. So I concluded to give them a chance. I am confident they will be more dependable than men under the present scarcity of labor. We will have the women wear bloomers."



THE NEW HARTFORD SHOCK ABSORBER has a swivel end which causes the device to align itself to road variations. The disk arrangement is shown in the small drawing at the right

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Motor Truck Men to Hold War Convention

Will Take Up Problems During Show in New York—Greater Use of Trucks a Feature

NEW YORK, Dec. 24—Manufacturers of motor trucks will meet in this city Jan. 8, during the New York show, to consider how the motor truck industry may best fit into war conditions.

One of the big subjects to come up will be the greater use of trucks, in short haul work—10, 20 and 30 miles—in order to relieve the railroads of their freight overload. Experts have stated that the use of trucks in this manner would do much toward ameliorating conditions.

The truck men will also consider how they can be of greatest service in co-operating with the Government in his motor truck program. The demands made upon the industry will be explained fully.

The meeting will be held in the board room of the National Automobile Chamber of Commerce, which is calling the meeting. Among the papers scheduled are:

Co-operative Delivery with Motor Wagons; A. W. Shaw, chairman of the Commercial Economy Board of the Council of National Defense.

Motor Trucks in Short Haul Work; George H. Pride, president of the Heavy Haulage Co., New York.

Delivering Army Trucks by Highway; Brigadier General Chauncey B. Baker of the Quartermaster's Department, U. S. A.

Work of the Highways Transport Committee; Roy D. Chapin, chairman.

Highways for Heavy Haulage; Henry G. Shirley, chief engineer of the Maryland State Road Commission, Baltimore.

Legislation Affecting the Use of Motor Trucks; J. T. Roche, vice-president of the Locomobile Co. of America.

Maintaining a Record of Unselfish Co-operation; George M. Graham, manager of the truck department of the Pierce-Arrow Motor Car Co.

Others invited to attend include H. L. Horning, chairman of the Automotive Products Section of the War Industries Board; Christian Girl, director of production, Military Truck Division, Quartermaster's Corps, U. S. A.; Alexander W. Copland, Hugh Chalmers and John R. Lee of the Automobile Industries Committee, and Logan Waller Page, director of the Office of Public Roads, Department of Agriculture.

Combined Motors Narrowed

CHICAGO, Dec. 22—The Combined Motors Corp., which according to earlier reports was to be a merger of three car builders and a body maker, has completed its organization work. As it stands finally, it combines the Bour-Davis Motor Car Co., which has made the Bour-Davis and the Shadwick Brothers Co., producing the Shadwick Six. Neither the Dixie Motor Car Co., Louisville, Ky., making the Dixie Flyer, nor the Collins Body Co., St. Louis, Mo., both originally reported to be in the combination, is included in the merger.

B. L. Craig, president of the R. N. Vehicle Woodwork Co., St. Louis, has resigned as president of the newly organized combine. He says that the Combined Motors Corp. has no option on the Collins plant and that his company will not enter the combine. Mr. Craig does not explain why he was elected as head of the new concern.

Maxwell Dealers Gather

MILWAUKEE, Dec. 20—Forty Wisconsin Maxwell distributers held a convention in Milwaukee on Dec. 11 under the auspices of members of the factory staff and discussed plans for the co-operation with the Government in forming a transportation system that will place the smallest dealer and the largest shipper on an equitable basis.

Engineering Developments

(*Continued from page* 58)

A change which does not show on tabulations, but which is quite important, is that toward deeper frame sections and stiffer frame construction. This goes hand in hand with the tendency to use more leaves in springs in that its sole purpose is to make for better riding. It is hardly possible to use an 8-in. frame section except when entirely redesigning a chassis, so in this quiet year there have been few extreme cases of deep frames. A good many manufacturers have added a half inch, or some similar amount which is insufficient to necessitate completely new brackets all over, a new motor support and so on. Still it is certain that the next redesigning period, which will most probably be the year after peace is declared, will see automobile frame construction greatly changed. Such frames as the Marmon and the Premier are typical of the construction of the future.

Weight Saving Halted

Weight saving in chassis parts, which had begun a year ago, is halted by the present need for using only medium grade materials wherever possible. The amount of interest which the automobile engineers are now taking in aviation will certainly provide them with plenty of ideas for the future and many have plans laid for a much lighter after-the-war car.

Every year for many years, in reviewing the annual progress of either America or Europe, it has been necessary to remark that steering and brake design are on the average poor; that the best in brakes and steering is much higher above the average than the best of most other features. The steering gear and the brakes remain the poorest parts. Nothing has been done in 1917 which can be regarded as a general improvement.

Cassidy Takes Over Sale of Rajah Plug

Distributer Adds Product of Old Manufacturer to Line of Other Well-Known Goods

NEW YORK, Dec. 24—The Edward A. Cassidy Co. has taken over the distribution of the Rajah spark plug, which has been manufactured for 16 years by the Rajah Auto Supply Co., Bloomfield, N. J. The company will continue its manufacturing as usual, Cassidy acting as the sales department. The Cassidy company is also acting in a similar capacity for the Corning conaphore, Corning Glass Works, Corning, N. Y., and G. P. muffler cut-out, Long Horn, G. Piel Co., Long Island City, N. Y.; Cassco engine-driven tire pump, West Side Foundry Co., Troy, N. Y.; Kimball auto jack, F. W. Mann Co., Milford, Mass; Tenion piston ring, Dubois Piston Ring Co., Albany, N. Y.

Morgan County Organizes

FORT MORGAN, COL., Dec. 24—The Morgan County Auto Trades Assn. was formed Dec. 18 with these officers: President, J. H. Croft; vice-president, W. G. Eaches; secretary, A. L. Davidson. The organization endorsed the cash basis movement and recommended that it be put into effect Jan. 1. The idea is rapidly covering Colorado. The association will at once take up the question of training help to take care of the summer rush.

Paige Adds 2-Ton Truck

DETROIT, Dec. 20—The Paige Motor Car Co. has developed a 2-ton truck. Immediate steps are being taken to place the truck in production. It will, however, be some time before the truck is placed on the market.

Ambu Wins Copyright Suit

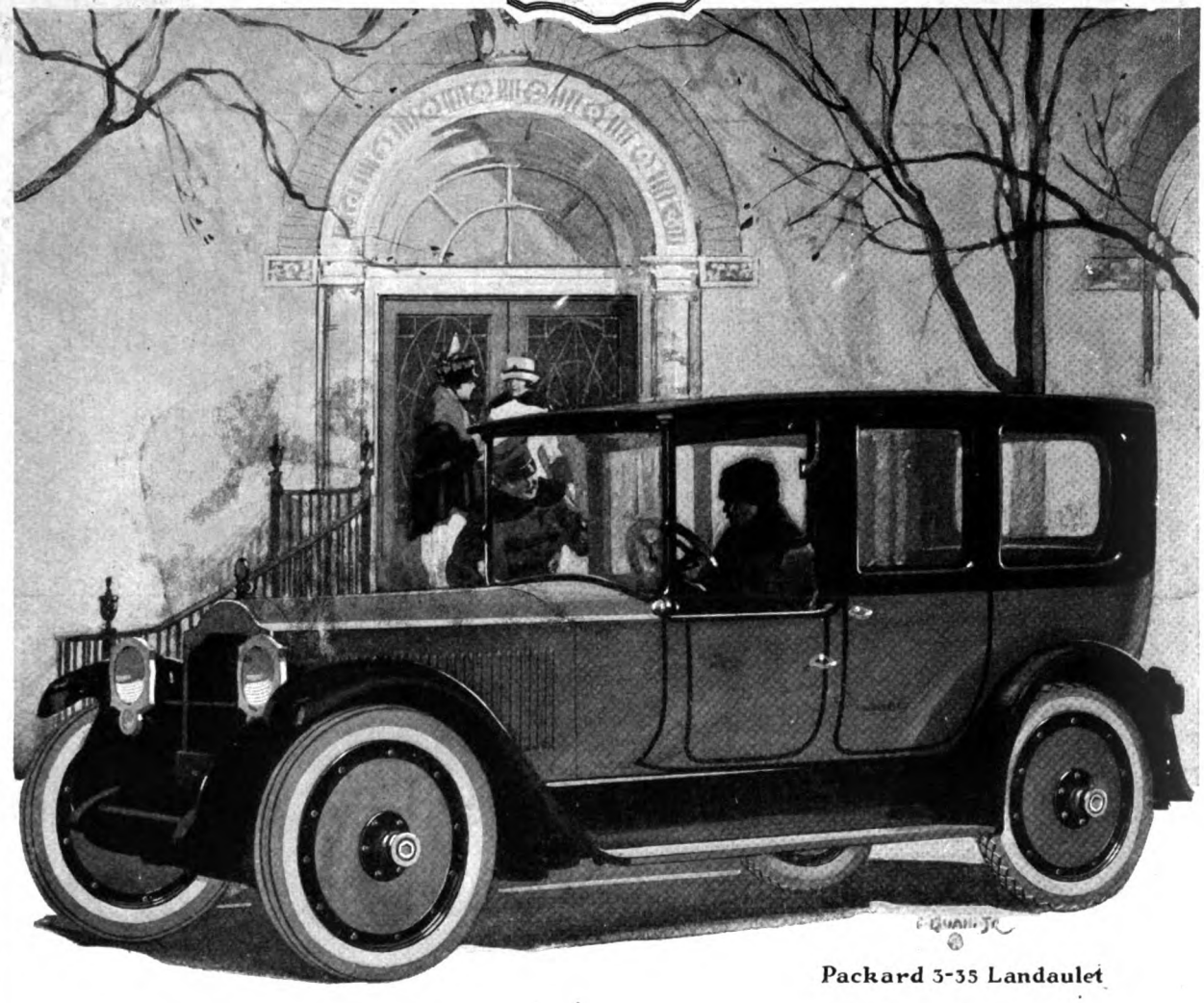
CHICAGO, Dec. 14—The American Bureau of Engineering, maker of the Ambu electric trouble finder, has won a copyright infringement suit against the International Motor Institute, Chicago. Judge Carpenter in the United States Circuit Court within the past week issued a restraining order prohibiting the sale of the book of wiring diagrams called the Official Wiring Guide, published by the International Motor Institute. It was held that these were infringements of the 400 copyrighted wiring diagrams published by the American Bureau of Engineering as a part of its service. Temporary injunction was issued Oct. 26 and was made permanent Dec. 4. The question of damages is now in the hands of the Master of Chancery.

New Parry Farm Body

INDIANAPOLIS, Dec. 17—The Parry Mfg. Co., which produces bodies, will shortly place on the market a new style farm body. It will fit the Ford one-ton truck chassis and will be 60 in. wide.

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DISTEEL WHEELS



Packard 3-35 Landaulet

DISTEEL WHEELS

The plane surfaces of Disteel Wheels are in perfect keeping with streamline effect and make possible more pleasing color ensemble in finishing. From the standpoint of design, Disteel Wheels are infinitely more in harmony with present day practice than any type of spoked wheel. We have an attractive proposition for dealers selling medium priced and high priced cars ~ ~ ~ ~ ~

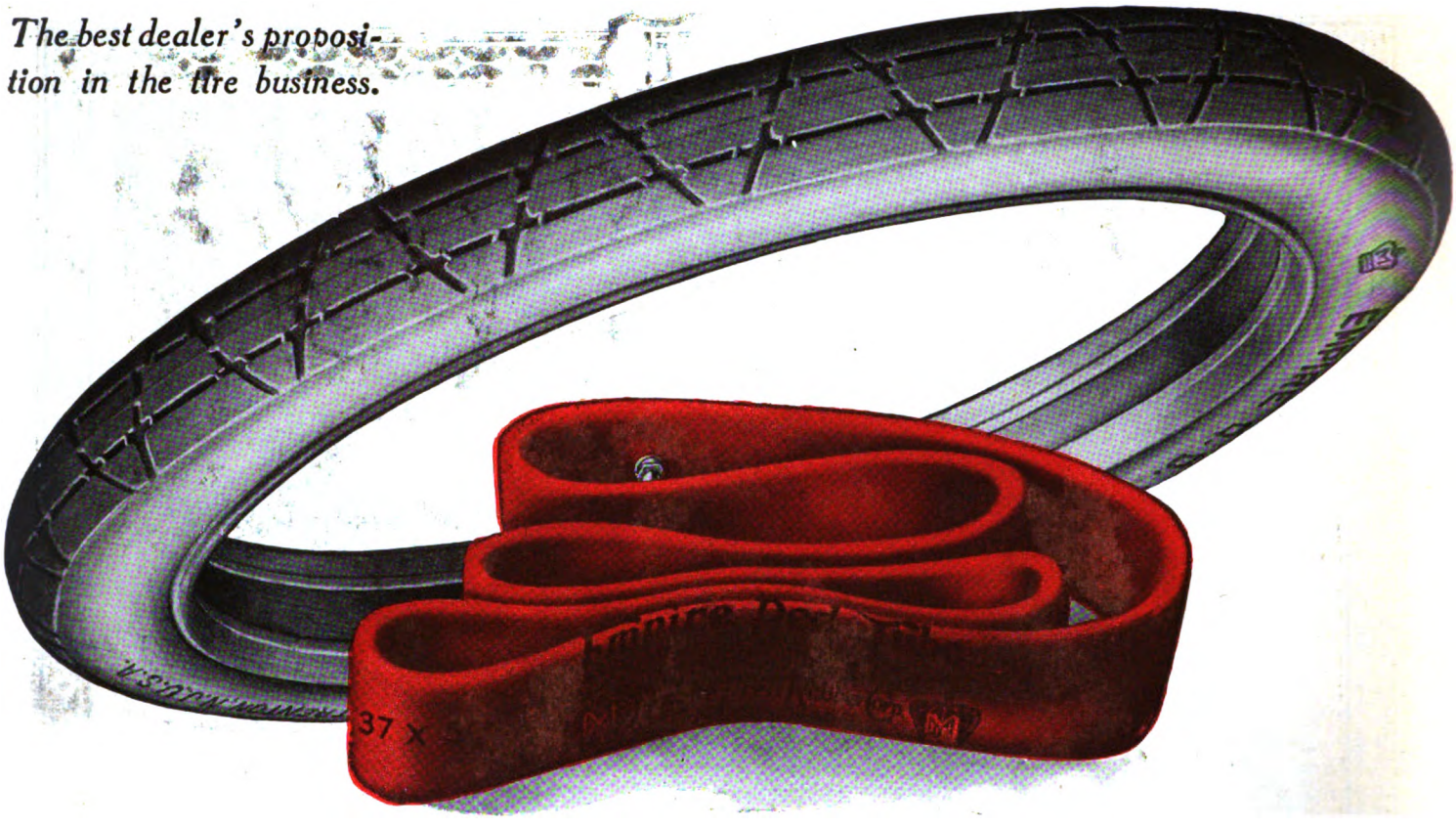
DETROIT PRESSED STEEL COMPANY

1804 Mt. Elliott Ave. Detroit, U.S.A.

When writing advertisers please mention Motor World—it identifies you

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The best dealer's proposition in the tire business.



The tire is as good as the tube
The tube is as good as the tire

For 10 years Empire Red Tubes have been recognized by the trade and car owners as the best on the market. They have come to be called "the tubes that outlive the car itself."

And Empire Casings have won the same high standing. Actual records prove that the ***average*** Empire, in ***average*** running, will deliver thousands of ***extra miles.***

The same fine materials, the same painstaking workmanship, the same secret processes which for 30 years have made the name Empire famous for long life in rubber goods of all kinds, account for the surplus quality of every Empire tire product.

For dealers the Empire proposition is the best in the field.

The margin of profit is the fairest. The sales are increasing the fastest.

And the advertising is wide-spread, powerful and unique. Our full pages in The Saturday Evening Post, The Literary Digest and elsewhere are signed, not with our own name, but as follows: "The Empire Tire Dealer."

Thus we centre the consumer's attention, not on our factory, but on your store, in his own home town.

Empire advertising thus becomes your own advertising, addressed to the car owners of your own locality.

Write for our proposition today.

THE EMPIRE RUBBER & TIRE COMPANY
TRENTON, N. J.

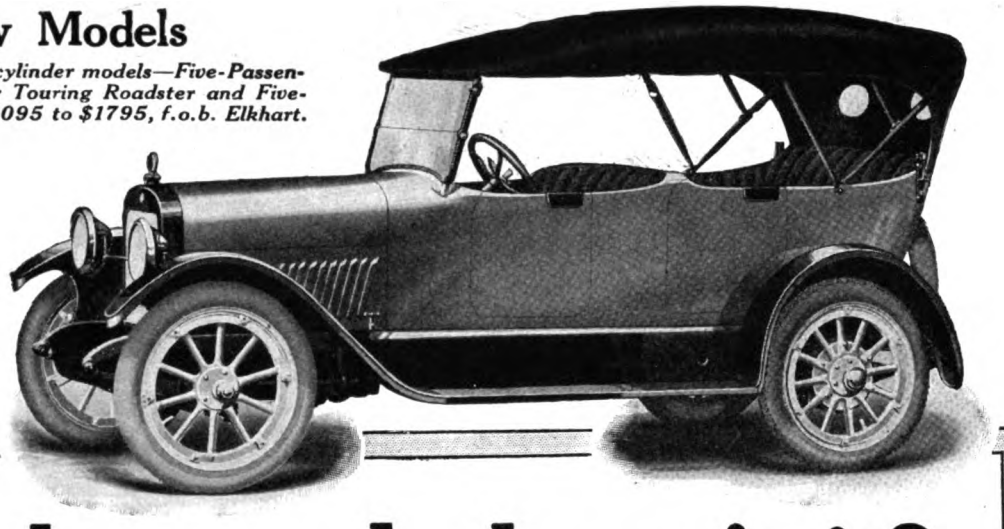
Empire Tires

When writing advertisers please mention Motor World—it identifies you

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Six New Models

Three 4-cylinder models—three 6-cylinder models—Five-Passenger Touring Car, Four-Passenger Touring Roadster and Five-Passenger Sedan. Price range, $1095 to $1795, f.o.b. Elkhart.



Looks good, doesn't it?

—and the picture doesn't begin to do it justice

ELCAR

It is graceful in design and beautiful in finish—smart and stylish in every detail. Nothing lacking for beauty, comfort, performance or endurance. Drive all day and you won't be cramped or tired.

The steering is the easiest; the control the simplest. Easy riding whether fully or partially loaded; remarkable in this respect. Abundant power for hard pulls—fine driving qualities at all speeds—and all the speed you want.

Reliable quality is a certainty in the Elcar. We learned to put in quality years ago when building cars selling up to and above $3000. It is a quality car at a popular price—good and large enough to fulfill any motor car requirement.

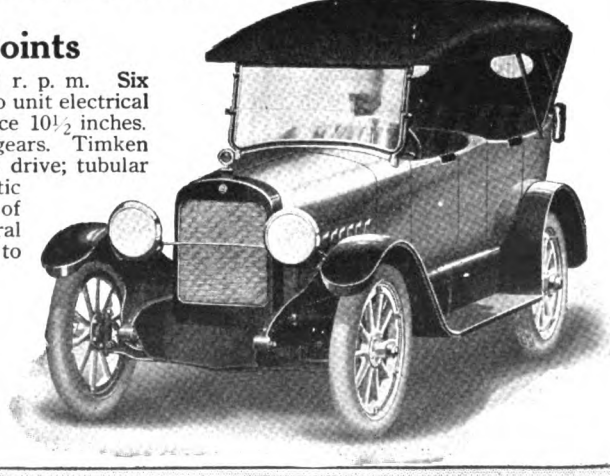
Catalog on Request

Write for the Elcar catalog — very descriptive, well illustrated — gladly mailed to all interested.

Don't think of choosing until you have seen the Elcar. It will be at the New York and Chicago shows, and at other leading shows—or see it in the show room of any Elcar dealer.

Elkhart Carriage & Motor Car Company
C-779 Beardsley Avenue **ELKHART, INDIANA**

Pretty as a picture from any angle



Brief Mention of Elcar Points

Four-cylinder models, 37½ horse power at 2,100 r. p. m. Six cylinder models, 40 horse power at 2,100 r. p. m. Two unit electrical system. Long wheel-base, 116 inches; road clearance 10½ inches. Full floating rear axle with spiral bevel driving gears. Timken Roller Bearings front and rear. Double universal drive; tubular propeller shaft. A wonderfully easy riding semi-elliptic spring suspension. Roomy and comfortable bodies of beautiful design and durable finish; new "Cathedral Pipe" upholstering. Equipment complete, even to motometer.

Dealers! Look at the value—look at the price—then get in touch quick if you are interested. Our increased production will enable us to accommodate a few more live dealers in picked territories.

Digitized by Google



The Ahlberg Bearing Co., Chicago, authorized reconstructor and distributer under Conrad patents.

Where the Slightest Flaw Invites Destruction

IN the aeroplane—where the slighest defect in any part or material invites almost certain destruction and loss of life—you usually find Hess-Bright Ball Bearings. They are essential to machines in which dependability, endurance and faultless operation are imperative, and are invariably an indication of conscientious construction. The same is true regarding motor cars — the better are Hess-Bright equipped.

Where Performance takes Preference over Price

Digitized by Google

Prevents Frozen Radiators



Does Not Evaporate

JOHNSON'S FREEZE-PROOF

EVERY car that goes past your place of business this winter —every one in service all over the country where winter means cold—has something in the radiator to keep the water from freezing. This winter, instead of alcohol and glycerine, automobile owners are using Johnson's Freeze-Proof because it

Costs Less and Lasts Longer

Johnson's Freeze-Proof does not evaporate with water, so one application is sufficient for the entire winter unless the solution is lost through the leakage. Johnson's Freeze-Proof has been tested from every angle. Over a half-million packages have already been sold and are giving universal satisfaction.



It is Easy to Sell

All you have to do is display Johnson's Freeze-Proof and it will sell itself. It is attractively put up—it is easy to handle—no chance of loss through evaporation or leakage—and all jobbers have it so you can easily make your purchase.

Order Johnson's Freeze-Proof now, for five million motor cars that need it. Get that business with the profits that belong to you.

Johnson's Freeze-Proof is a powder supplied in convenient package form. Retail price $1.50. One package protects Fords to 5° below zero. Two packages protect large cars to 5° below zero and three packages to 20° below zero.

Extensively Advertised

Johnson's Freeze-Proof is by far the most extensively advertised anti-freeze preparation on the market today. This not only sells the product, but establishes confidence in it and overcomes the old fashioned prejudice against anti-freeze preparations.

S. C. JOHNSON & SON, Dept. MW, RACINE, WIS.

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Increases Power



Saves Gasoline

JOHNSON'S CARBON REMOVER

The New Way

THE old-fashioned way of burning out carbon once a season is gone for good. The new way—with **JOHNSON'S CARBON REMOVER**—gives better results without lay-up, loss of time, or inconvenience. You make bigger profits in a year selling Johnson's Carbon Remover over the counter, than you did burning out carbon from choked-up motors by an obsolete and expensive method.

Two Million Cans Sold Last Year

Last year we sold two million cans of Johnson's Carbon Remover with no dissatisfaction whatever. During 1918 we expect to sell ten million cans. This means tremendous profits to the live dealers who handle and recommend it. Stock now and get your share.



Nationally Advertised

Johnson's Carbon Remover will be advertised in all the motor papers, magazines and weeklies—Saturday Evening Post, Literary Digest, Christian Herald, Outlook, Independent, National Geographic, McClure's Metropolitan, World's Work, etc., etc.

Conserves Gasoline

Do your bit and recommend Johnson's Carbon Remover to conserve the gasoline for Government use. Motorists should use Johnson's Carbon Remover every 500 or 1,000 miles to keep their engines clean and sweet—full of "pep"—and reduce their gasoline and oil consumption to the minimum. If you haven't it in stock, order it today from your jobber.

Quarts	$1.75
Pints	1.00
Half-pints	.65

Liberal discount to dealers.

S. C. JOHNSON & SON, Dept. MW RACINE, WIS.

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Mends Leaky Radiators



No Tools Required

JOHNSON'S RADIATOR CEMENT

Liquid

A NEW and efficient way of mending leaky radiators is with Johnson's Radiator Cement. It is quicker, more economical and more satisfactory than any other method on the market.

Finds Every Leak

Johnson's Radiator Cement finds every leak. No matter what part of the radiator, water jacket, or connections it is in, seal it up strongly from the inside, making it absolutely water tight. It does not clog the radiator tubes and does no injury whatsoever.

A Big Seller

75% of car owners have been seeking a good preparation for mending leaky radiators. Johnsons radiator cement is being advertised so extensively that it is going to gain the confidence of these owners and they will demand it. Can you afford to overlook this business?

All Jobbers have it so you can easily make your purchases.

Liberal Discounts to Dealers

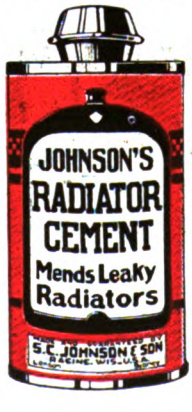
Johnson's Radiator Cement comes in Liquid form and is put up in convenient cans retailing at

Pints	$1.00
Half-pints	.65

allowing dealers a liberal discount.

Full directions for using are printed on every can.
Order from your jobber today and share in the profits that belong to you.

S. C. JOHNSON & SON, Dept. MW RACINE, WIS.



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Preserves the Finish



Keeps Cars New

JOHNSON'S PREPARED WAX

Liquid and Paste

JOHNSON'S Prepared Wax is the best polish for automobile bodies, hoods and fenders. It sheds water and makes a "wash" last twice as long. For twenty-five years it has been used by housewives all over the country for polishing their finest furniture—pianos, etc. These people have no hesitancy in using it upon their cars. It is attractively put up—the price is right—is extensively advertised—and claims the prestige of having given twenty-five years' satisfaction.

Johnson's Prepared Wax is put up in both liquid and paste form. Some people prefer the liquid and others prefer the paste. The Liquid Wax has the advantage of polishing easier.



Liquid Wax		*Paste Wax*	
Quarts	$1.40	No. 1 size (1 pt.)	$ .70
Pints	.75	Auto Size (5 oz.)	.35
Half-Pints	.50		

Johnson's Cleaner

is the twin of Johnson's Prepared Wax. It is for removing spots, stains, discolorations, etc., and putting the finish in perfect condition for the Wax polish.

Auto Size (8 oz.) ..... $ .35
Also put up in larger packages for garage use.

In planning your stock for Spring be sure to figure on a good supply of Johnson's Auto Products. They have all been tried and every one is bound to give satisfaction. They net the dealer a nice margin of profit and they are all fast sellers. The **JOHNSON LINE** includes the following:

JOHNSON'S PREPARED WAX (liquid and paste)	JOHNSON'S CLEANER
JOHNSON'S CARBON REMOVER	JOHNSON'S BLACK-LAC
JOHNSON'S AUTO-LAK	JOHNSON'S STOP-SQUEAK OIL
JOHNSON'S FREEZE-PROOF	JOHNSON'S RADIATOR CEMENT

For further information write S, C. JOHNSON & SON, Dept. MW, RACINE, WIS.

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NORDYKE & MARMON COMPANY

Present The

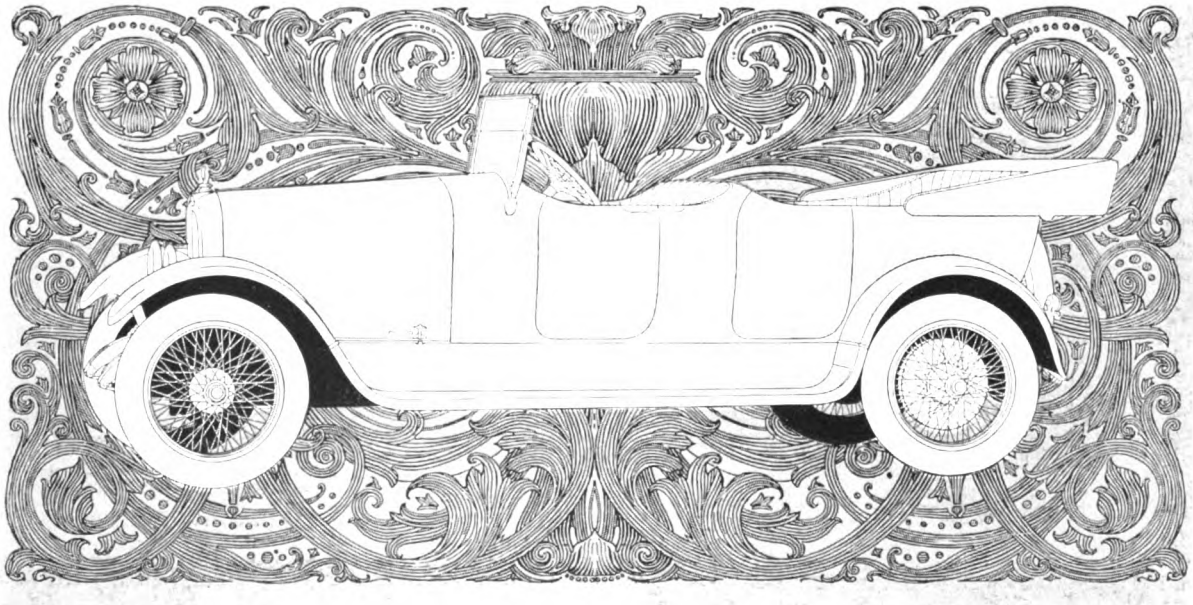
NEW SERIES

MARMON 34

To Be Seen At The Principal Motor Shows

THE distinguishable differences between this and the preceding series are the wider seats and the deeper sides. There are, in addition, numerous refinements not readily perceptible but none the less effectual in making this celebrated car even more comfortable, luxurious and convenient than before.

On the following page—an invitation to dealers.



Digitized by Google

MARMON 34

Advanced Engineering

An Invitation To All Automobile Dealers Who Will Attend The Motor Shows.

THE Marmon Exhibit will include four models of the new series Marmon 34. They will comprise not only interesting attractions from the car buyer's standpoint, but will constitute a factor of first import to dealers.

There will be shown the Marmon open cars that are a half-ton lighter than those of equal size and power, and the Marmon enclosed cars that weigh less than open cars of competitive build.

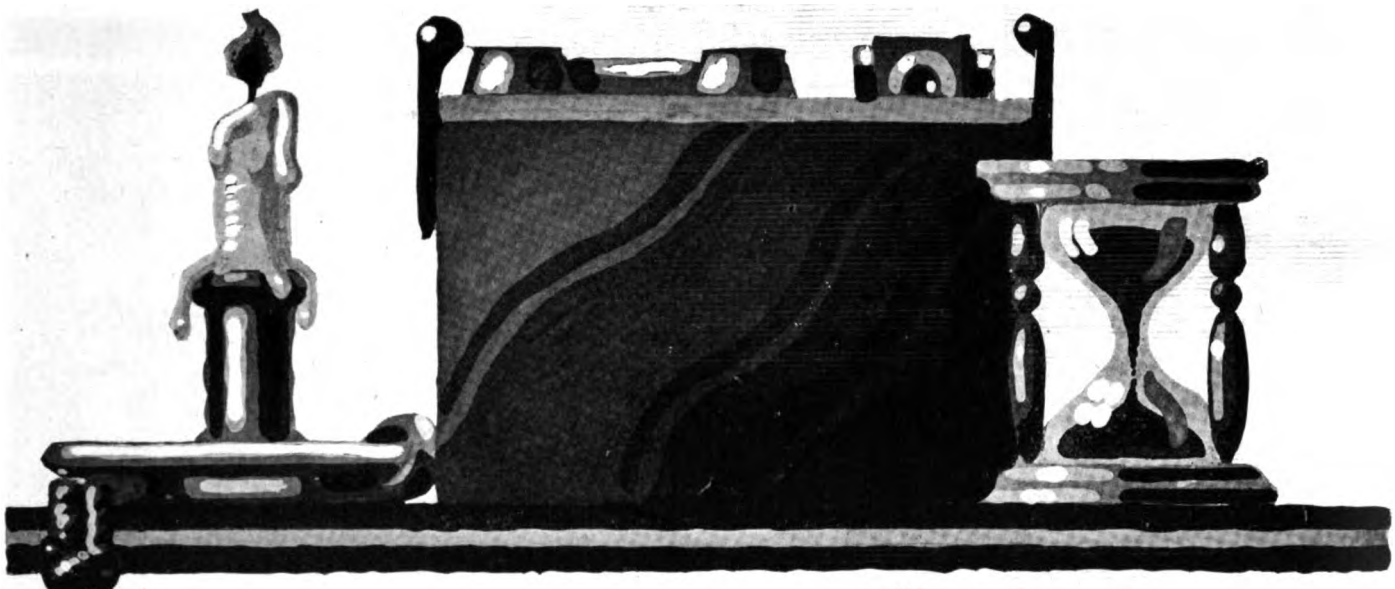
The Marmon Chassis will be found to be the same for all types of bodies-wheelbase 136 inches.

May we not hope to have the pleasure of showing you the new Marmon excellencies as a matter of interest to you and of pride with us?

NORDYKE & MARMON COMPANY

Established 1851 : INDIANAPOLIS

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The Everlasting Battery

Never before in the history of the automobile industry has there been offered a battery with such an inherent capacity for long, satisfactory service.

PERMALIFE BATTERIES, in every process of manufacture, from the forming of the specially designed lead grids to the last thorough test in the Permalife Laboratory, bespeak permanency.

THE LIFE OF A BATTERY is in the plates and here lies the fundamental reason for Permalife superiority.

PERMALIFE PLATES are *packed—not pasted*—with an active material of such density as to make them well-nigh indestructible. And yet, this active material presents a surface to the electrolyte which insures quick and free chemical action—and a resultant rapid current output.

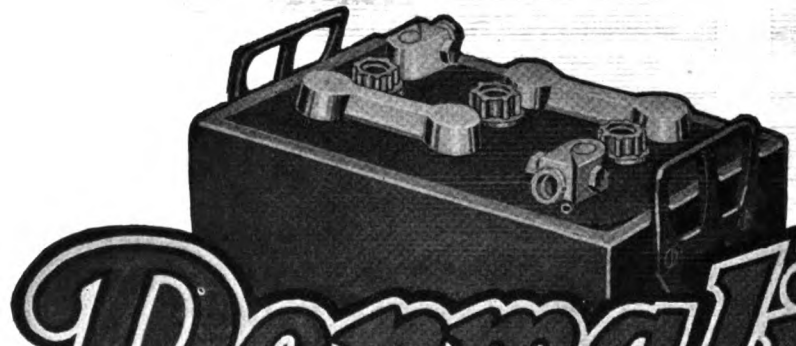
The **harmful sulphation,** which is the prevailing disease among other makes, **is completely prevented in Permalife Batteries.** Barring abusive treatment Permalife Batteries are positively non-sulphating.

DEALERS—The Permalife merchandising plan presents a unique opportunity to capture and keep the bulk of your local battery business. It is of vital importance to you because it insures a permanent battery service to your patrons and gives you their permanent patronage.

Let us show you the profit getting possibilities of Permalife.

Write for this AT ONCE

Permalife Storage Battery Co., Inc.,
POUGHKEEPSIE, N. Y.



Permalife
LASTS FOREVER

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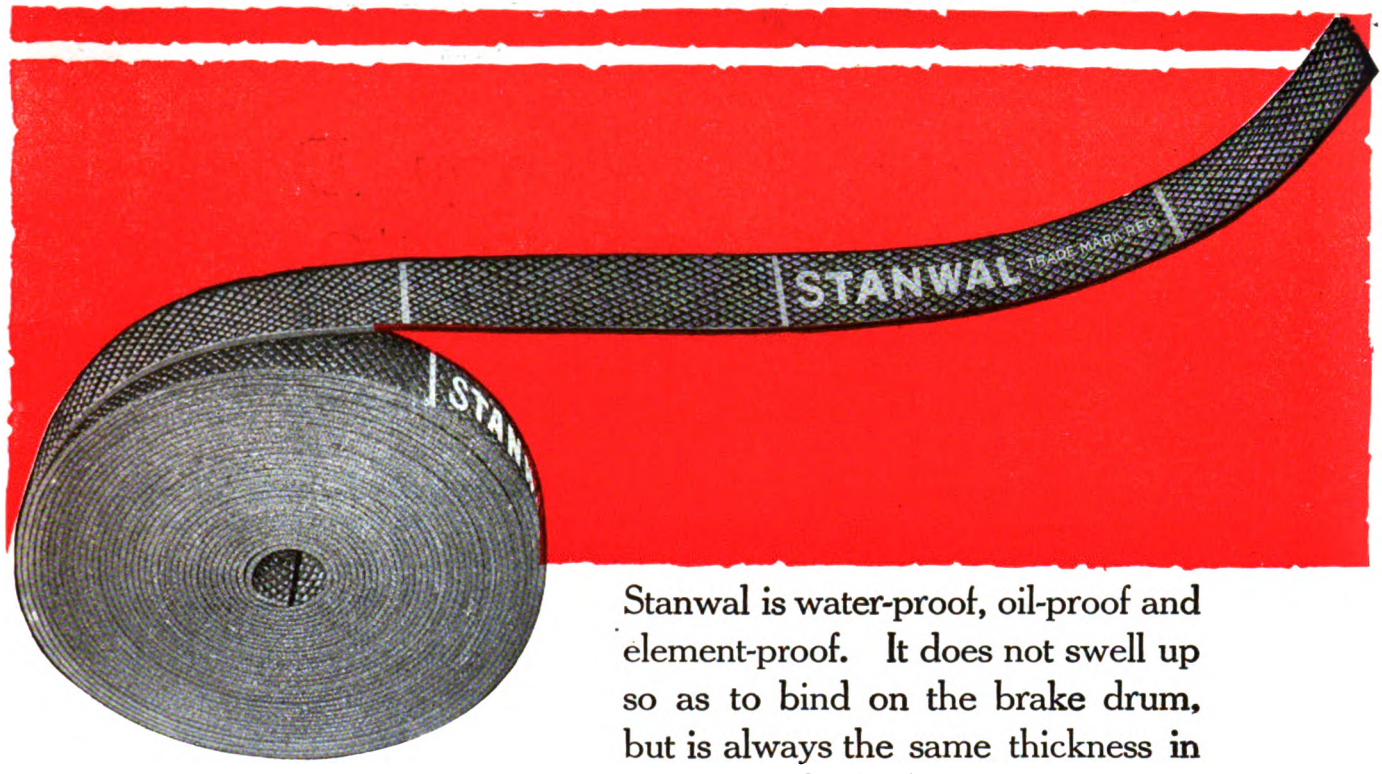
STANWAL BRAKE LINING AND CLUTCH FACINGS

STANWAL marks a distinct advancement in manufacture. It is an engineering achievement — an invention which has revolutionized the quality of brake linings for pleasure cars and trucks.

Tested by impartial experts, Stanwal is pronounced perfect in performance. It withstands the frictional heat generated in the brake drums under any conditions of service.

Stanwal will not absorb moisture. It is unaffected by oil and water. It is noiseless under severe pressure. It averages a plus 25 per cent wearing quality.

Digitized by Google



Stanwal is water-proof, oil-proof and element-proof. It does not swell up so as to bind on the brake drum, but is always the same thickness in relation to the brakes.

STANWAL improves with use. This is made possible by the exclusive, scientific treatment which is given to every foot. As a result of this treatment a high frictional quality is given to the fabric, and as the frictional pressure is applied the heat-resisting quality increases.

Write for our descriptive booklet, "Safety at a Saving"

STANDARD WOVEN FABRIC CO.
WALPOLE, MASS.

New York Branch and Export Office, 1834 Broadway
Chicago Branch Office, 1430 Michigan Avenue
Detroit Branch Office, 306 New Telegraph Building
Philadelphia Branch Office, 406 Colonial Trust Co. Building

OTHER STANWAL PRODUCTS

Multibestos Brake Lining and Clutch Facing
Stanwal Friction and Insulating Tapes
Splicing Compounds
Cable and Specification Tapes
Tire Tape
Moulded Rubber Goods
Stanwal Matting
Stanwal Rubber Heels
Stanwal Fiber Soles

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CREW LEVICK "As Old as the Industry" CREW LEVICK

CREW LEVICK Grease-in-Tubes CREW LEVICK Tire Seal

Will the Accessory Dealer Make Money in 1918?

AS an accessory dealer, you are thinking pretty hard, nowadays, of what may happen to your business in 1918.

In thinking of the coming year's business there are certain facts and tendencies to keep in mind.

In the next twelve months the accessory business will unquestionably be prosperous. Nothing *serious* can happen to the production and sale of new cars. But, regardless of that, the American public has grown to depend upon the automobile *as a transportation factor.* And the 5,000,000 motor vehicles in the country will find *maximum usefulness* the coming year. This will create greater need for oils, greases, tires, and other *useful* accessories.

The facts are that conditions have never been *more favorable* for those dealers who are *good business men.*

* * *

Now, the accessory business will be so good that a certain type of dealer is apt to assume that he can sell anything; — and perhaps he can—*for a while.* But he will do it in the face of a public *thinking of thrift* — acutely conscious of accessories *values*—and *demanding to be shown.*

The dealer who sees these conditions clearly is inevitably led straight to the Crew Levick accessories.

* * *

We have no desire to minimize the grim and serious job that America has undertaken.

Yet, for our own part, we see the 1918 accessories situation so clearly that we feel justified in putting a strong, national advertising campaign back of the Crew Levick products.

For years, this Company has foreseen the time when the public would demand a well-thought-out line of accessories *selected for service.*

That time has come. The public is ready. *What you need are the Crew Levick accessories and the advertising campaign to back them up.*

* * *

The Crew Levick Company aims to build a national reputation that will be a valuable and permanent asset to the dealer.

It is the Crew Levick policy to market only products that will create good will and repeat orders—to discourage any tendency on the part of its dealers to overload—*to help its dealers to a bigger, sounder, more profitable accessory business.*

With a splendid line of high-grade oils and greases, with a quick selling list of motor specialties—and with *more to be added* as they are developed—Crew Levick will be the *DOMINANT* name in the accessories business in 1918.

The Crew Levick Motor Products

Motor Oils and Greases
that prolong the life of the car. A grade for every purpose—and each grade perfect in lubricating qualities. Oils in 1 and 5 gal. cans. Greases in 5, 10, 25 lb. cans.

Grease-in-Tubes
"The tube way is the best way"
Safety, cleanliness, economy in every kit. Pure grease for the right purpose. $1.00 for 3 generous tubes.

Fractors
"All the light, but within the law"
Glass cups that fit under the lamp bulb and scientifically solve the headlight problem. Shoot a brilliant light far ahead. Do not blind. One size fits all lamps. $2.75 a pair.

Mistokleen
"The smartest cars are Mistokleened"
Its use keeps you proud of your car. Works easily, quickly, thoroughly. Filled sprayer $1 25.

Mistokloths
"A clean Kloth always handy"
A new idea for your convenience. As handy around the car as a handkerchief in your pocket. In neat boxes 25c and 50c.

Tire Seal
"Lets tires make good"
Eliminates forever the possibility of punctures. Inner tubes will last longer with Tire Seal, a thoroughly practical product. $1.50—$2.00—$2.50 per can.

CREW LEVICK Mistokleen CREW LEVICK

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CREW LEVICK Mistokloths CREW LEVICK

CREW LEVICK

VICTOR fresh air HEATER for FORD Cars $5

REG. U.S. PAT. OFF.

Takes the Last Drawback Out of Winter Motoring

YOU demand heat at home—and in your office. You get heat in railway trains—and elsewhere.

And there is no logical reason why you shouldn't have plenty of heat in your motor car. Up to now this has been impossible—*because the right idea was lacking.* Owners had to be satisfied with what comfort could be extracted from heated metal foot rests and other half-way measures.

Since last October nearly 50,000 Ford Owners have equipped with the Crew Levick Victor Heater—and have found a decidedly new kind of comfort in cold weather motoring. They know that it takes the edge off the most unfriendly weather.

Having a Crew Levick Victor Heater in the Ford is like carrying a hot-air furnace—with the register on the floor always ready to pour a steady, plentiful stream of pure, fresh, *warmed* air up into the tonneau of the car.

Now, when you want heat in a car you want it *instantly*. And with a Victor *fresh-air* Heater you get heat within thirty seconds after the motor starts. The Victor *fresh-air* Heater is connected directly to the motor without the use of troublesome flexible tubing. It weighs less than three pounds. Costs nothing to operate.

You'll never know how much usefulness you can get out of your car all winter until you equip with a Victor *fresh-air* Heater.

You couldn't buy a more efficient heater at any price for touring car, town car or sedan—$5 buys it. Twenty minutes' work installs it. You can do it yourself—*easily.*

Get the Victor now—and ride in warmth and comfort. Ask your dealer. If he doesn't yet carry it—write us.



The Victor Heater takes in fresh, cold air from outside the car and passes it over a metal drum heated by hot gases from the engine exhaust. The warmed air is then circulated up into the car through a register in the floor.

The Victor Heater is set on the exhaust pipe which connects it directly to the motor. The exhaust is not raised or deflected; it is not forced through flexible tubing.

A cone-shaped spring inside the drum deadens noise, and spreads the heat. A slotted metal plate in the drum sucks the exhaust, eliminating back pressure on the motor.

The heating of the air is all done underneath the car. There is no danger of scorching shoes or clothing.

TO DEALERS!

The heater business is now at its height—with three months still to go. With the Victor *fresh-air* Heater you can get *your* full share of these profits.

Remember that the Victor is the only scientifically constructed Ford Heater that heats *fresh-air direct—not metal.* You hand out a Victor like any other packaged accessory and are never troubled with service problems. Write your jobber—or direct to us.

Visit the Crew Levick Exhibit at the New York Show

CREW LEVICK CO. **PHILADELPHIA, PA., U. S. A.**

Oldest and one of the Largest Producers and Refiners of Oils, and Manufacturers of Petroleum Products

Refiners:
Pennsylvania Paraffine Works, Bessemer Refining Co., Glade Oil Works, Seaboard Oil Works, Pembrick Oil Co., Pa., Lawrence Oil Co., Pa.

Producing Companies:
Muir Oil Co., Pa., Combination Oil Co., Pa., Warren Co., Illinois, Oklahoma

Branches: New York, Chicago, San Francisco, Baltimore, Boston

Foreign Offices: London, England

CREW LEVICK Victor Heaters CREW LEVICK

CREW LEVICK Motor oils and greases CREW LEVICK Tractors

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ATWATER KENT

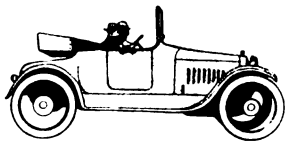
SCIENTIFIC IGNITION

For Every Car—Electrically Equipped or Not

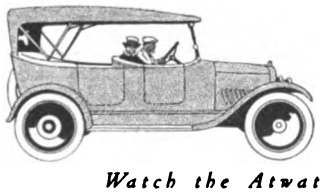
Over thirty manufacturers of cars, motors, trucks and tractors have adopted Atwater Kent Ignition as standard equipment.

See Us at the New York Show
Booth C-51, Third Floor, Near Elevator

SAXON



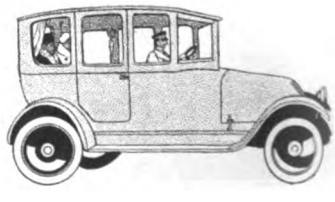
ELCAR



COLUMBIA

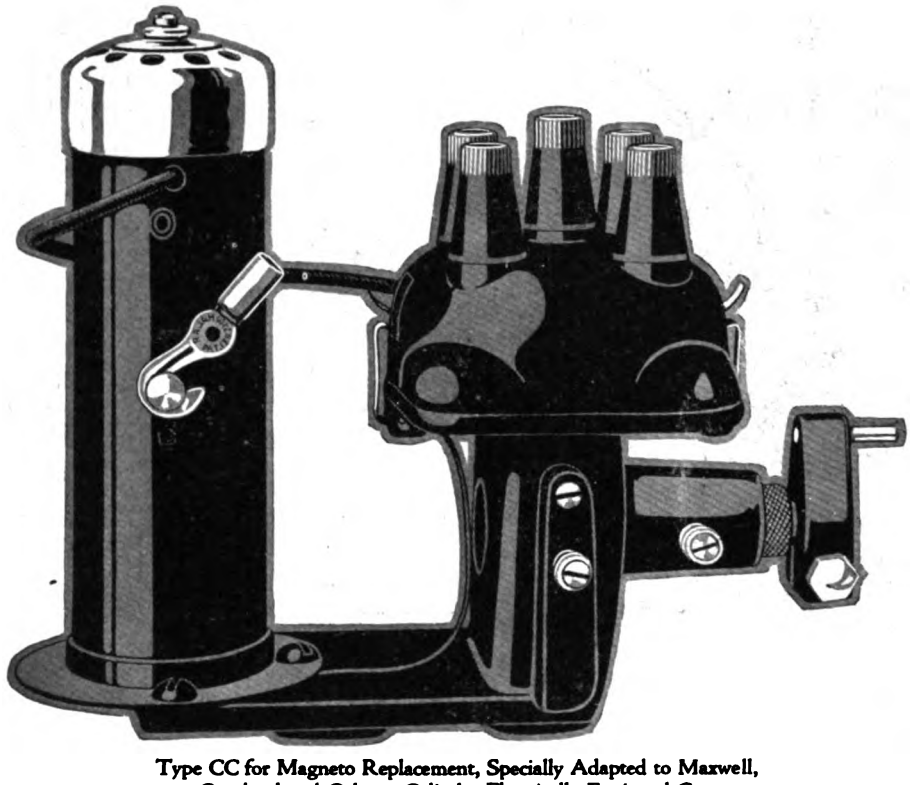


FRANKLIN



Watch the Atwater Kent Equipped Cars Go By

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Type CC for Magneto Replacement, Specially Adapted to Maxwell, Overland and Other 4-Cylinder Electrically Equipped Cars

THESE are momentous times in the automotive industry. Radical changes and developments occur daily—hourly. "Business as usual" cannot be our slogan. Business is *unusual* and will continue to be so for months to come.

Who will survive when commerce once more resumes its normal stride?

Those firms whose products are built on a bedrock of quality and who are *continuing* to build them so; who are *continuing* to exploit the worth of their wares by strong advertising campaigns; who are standing by their dealers and representatives in these times of stress.

Atwater Kent Ignition has stood the test of time. Thirteen years have served to establish it in the minds of the purchasing public as all that is best in ignition equipment; forceful national advertising and strict adherence to highest manufacturing standards are keeping it so.

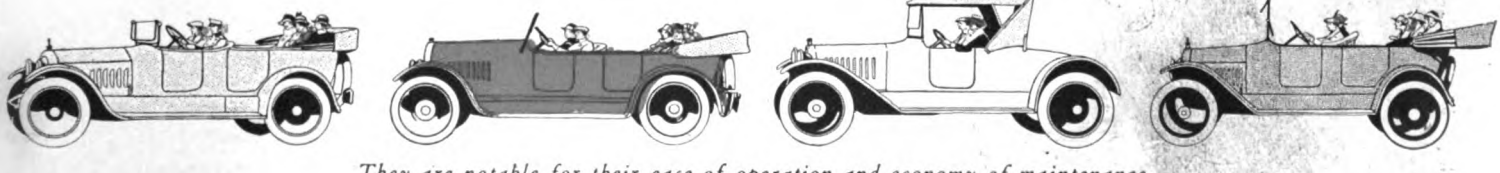
400,000 Atwater Kent Ignition Systems are now in use. 175,000 more will be bought during the year of 1918.

The farsighted dealer is identifying himself with products of known origin, the quality of which has been firmly established.

Prepare now to secure your share of this profitable business. Be the Atwater Kent dealer in your locality.

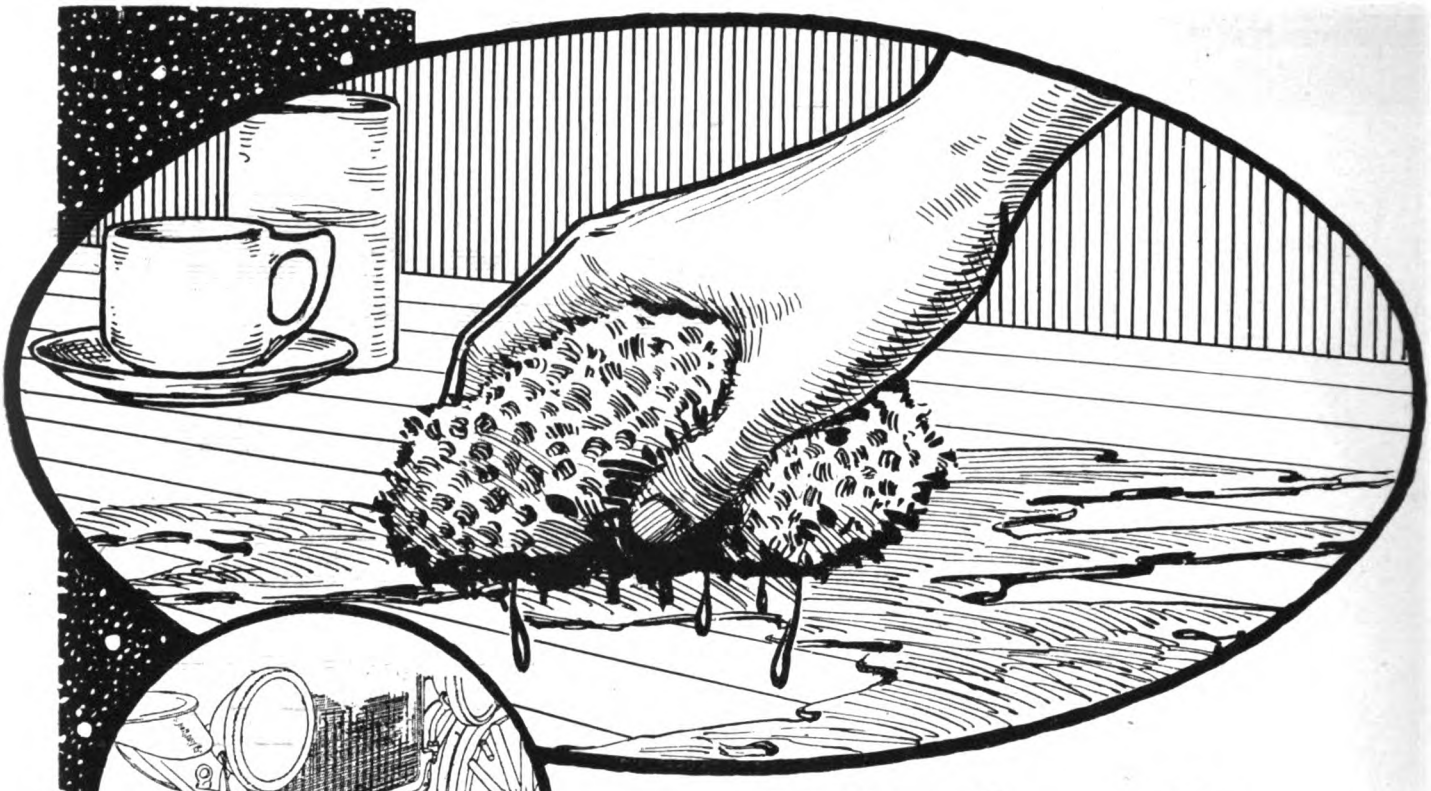
ATWATER KENT MANUFACTURING WORKS, PHILADELPHIA, PA.
4940 STENTON AVENUE

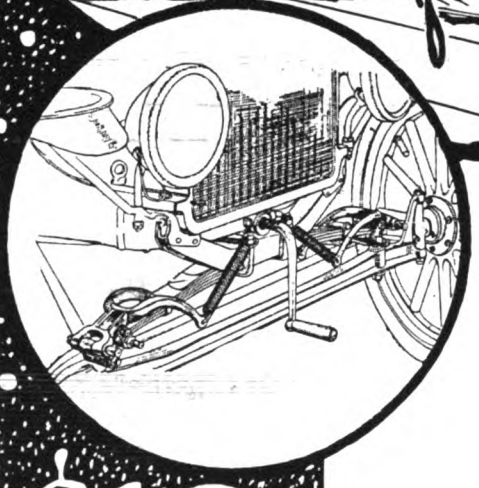
PEERLESS KING HUPMOBILE MAXWELL



They are notable for their ease of operation and economy of maintenance

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W & C

The Original Double-Arm Shock Absorbers For Fords

Absorb Shocks Like A Sponge Absorbs Water

Somewhere between the road and the passenger all the roughness is smoothed out when Ford cars are equipped with W & C Shock Absorbers.

W & C's take up the sharp jolts, round off the edges and pass them on to the body of the car as gradual, rolling swells.

It is significant to know that over 100,000 sets of W & C Shock Absorbers are in daily service on Ford cars—and that they make as much difference in the riding qualities of old Fords as of new ones.

In fact, thousands of old Ford cars have practically been kept on the road, by the installation of W & C equipment.

It is the one shock absorber that does more than owners expect. When they ask you for shock absorbers, what they mean to say is "W & C."

Ask your Jobber's salesman. He knows and has W & C.

$10 Per Set of 4

The Original Double Arm SHOCK ABSORBER **W & C** *For* FORD CARS

P. H. Webber Co.

Hoopeston Illinois

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MASON

MEANS MORE MILEAGE

Consistency- *and Mason Tires*

Consistent delivery of more mileage has proven the Mason story of quality construction.

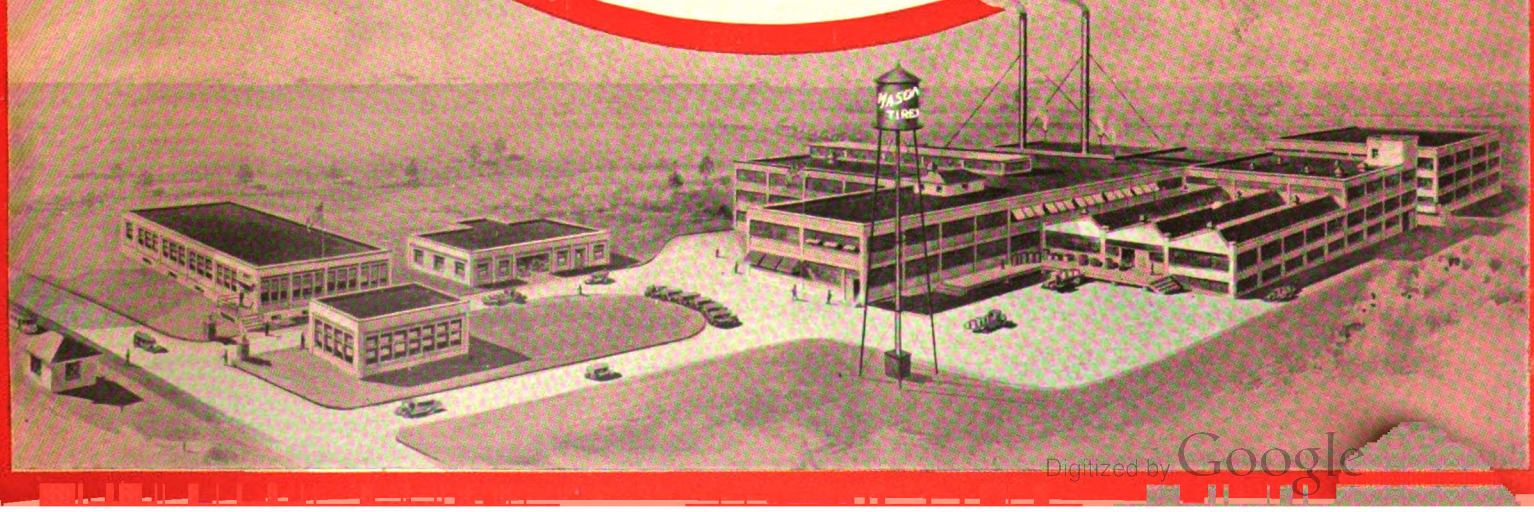
Consistent use of Mason Tires has lowered tire costs for thousands of motorists.

Consistent calls for Mason Tires have increased profits for hundreds of progressive tire dealers.

Consistency in every tire has given Mason a reputation for quality that has never before been linked with popular price

and

Consistency will prove to new thousands of car owners next year that Mason really "Means More Mileage".



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Mason Lattice Tread



Mason Tires Have Made Good!

They've been so much in demand that we have not been able to add factory space fast enough.

Within one year, output has increased 1000 per cent.; dealer connections have multiplied by the hundreds.

And on the cars!—There's the real proof of "more mileage". Once equipped with Masons, cars stay equipped with Masons. Motorists are convinced that Masons are the most economical tires they can buy.

That's a big thing for the progressive tire dealer.

MA

MASON TIRE & RUBBER CO.

Home Office and Factory

Kent, Ohio

Akron Suburb

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1918 Spells Opportunity For Mason Dealers

Right now, with tire prices soaring, the appeal of a quality tire at a popular price is greater than ever.

The dealer who can offer his customers sturdy, enduring quality at popular prices will find motorists mighty responsive to his suggestion.

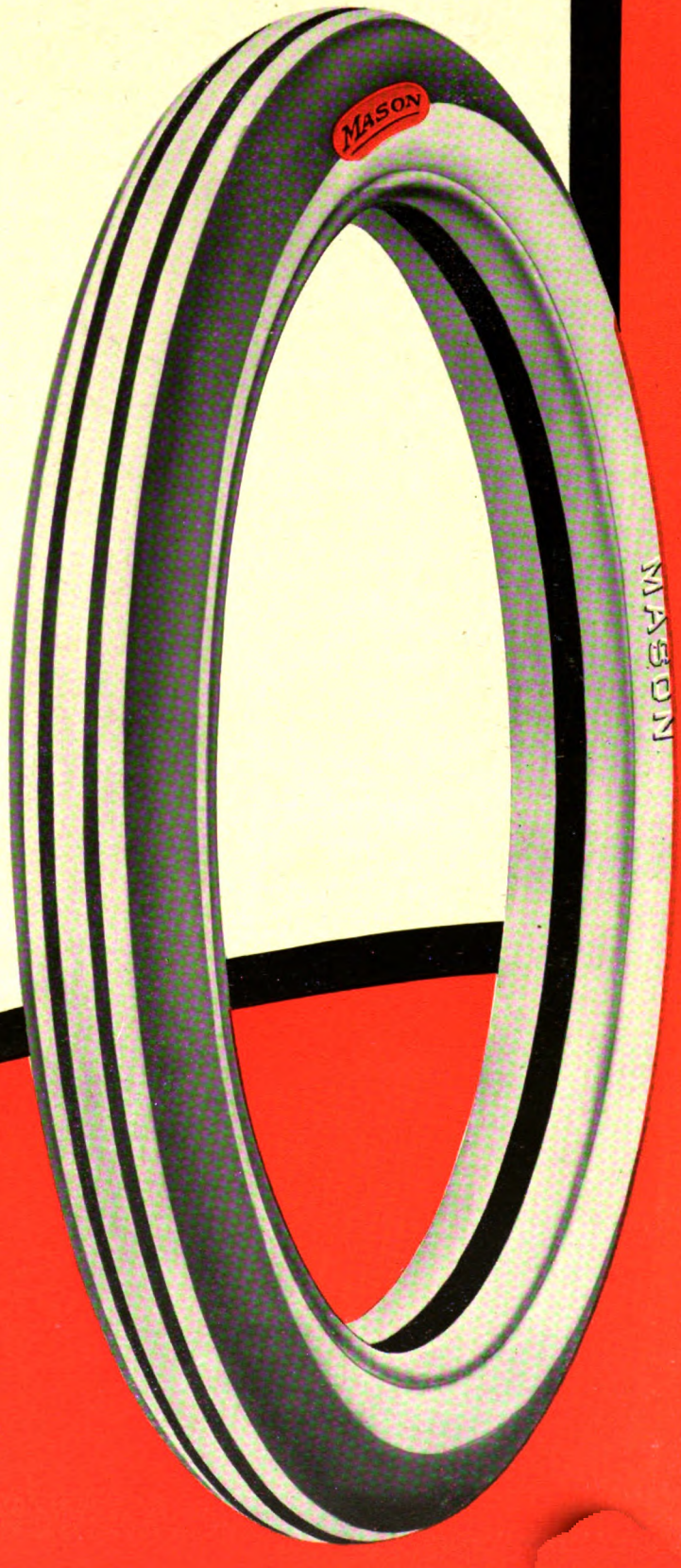
Mason distribution has been gained effectively, but deliberately. We want progressive dealers in every territory—and to progressive dealers we offer a proposition well worth while.

If you are interested in selling a quality tire at a popular price, drop a line to the factory.

SON

MEANS MORE MILEAGE

Mason Ribbed Tread



DISTRIBUTING BRANCHES:

Cleveland 1806 Euclid Ave.	Akron 34 W. Market St.	Chicago 2120 Michigan Ave.	
New York 28 W. 63d St.	Buffalo 834 Main St.	Atlanta 21 Houston St.	Kansas City 1732 Grand Ave.

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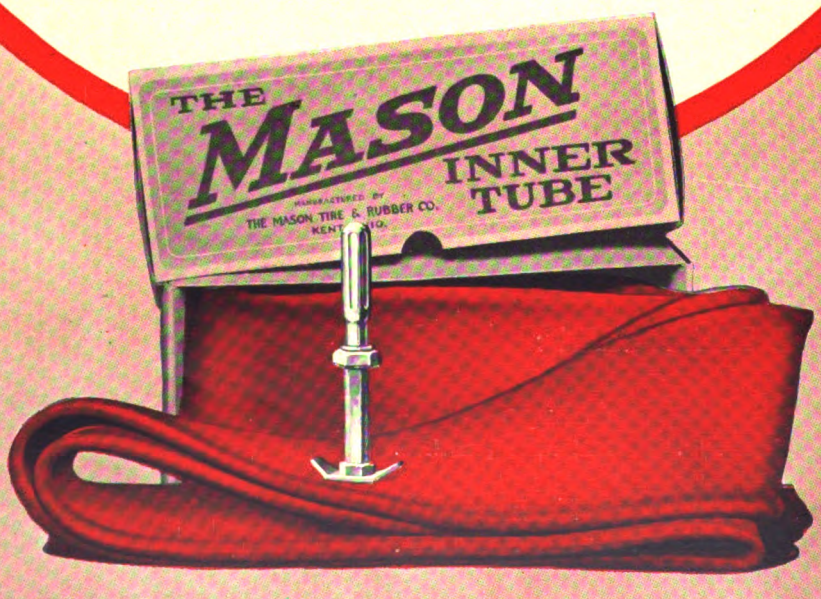
MASON MEANS MORE MILEAGE

The Ideal Tubes for Sturdy Service

MASON laminated red and gray tubes, too, have proved as consistent in performance as Mason tires.

They are built to give extra long service. Skilled Mason workmen construct them entirely by hand, with the same care and precision that is used in the production of Mason tires.

Mason tubes in Mason tires make a tire equipment hard to surpass.



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MASTER

The proper plug for—

Passenger Cars
Motor Trucks
Tractors
Marine Engines
Stationary Engines
Airplanes
Fire Apparatus



One of the Big Essentials—

toward speeding up the transportation of the country is — Uninterrupted operation of all motor vehicles.

Every individual

MASTER

Calorite Spark Plug

must pass with a perfect score a series of gruelling tests covering every possible mechanical or electrical weakness.

No spark plug showing weakness in any of these tests is allowed to enter our stock room.

Consider the value to you of this positive assurance of exceptional stamina, rugged endurance, and freedom from troubles characteristic of plugs made solely to suit a price.

There are many good reasons why Master Calorite Spark Plugs should be your selection.

Their design is in accord with the best engineering practice.

They are sturdily constructed of the finest materials obtainable, regardless of cost.

They are tested under rigid inspection rules.

They are generously guaranteed.

In their resale you derive a margin of profit which justifies your whole-hearted recommendation to your customers.

And the retail price is amply justified by their efficiency and durability.

$1.00 and $1.25.

Depending upon the size.

We shall exhibit at the New York Automobile Show—Grand Central Palace—Fourth Floor—Space D 57.

Hartford Machine Screw Company, 530 Capitol Ave., Hartford, Conn.

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DREADN



DREADNAUGHT
REINFORCED
VACUUM
TREAD

THE greatest invention for power, attack and invulnerability, is the battleship—the Dreadnaught type, a name typifying strength, power and resistance. What single word could more perfectly tell the whole story of the makers' confidence in the product than DREADNAUGHT. So DREADNAUGHT TIRES have come to be known in the world of automobilists as THE tire with the power, toughness and strength to resist and repel the tire enemies of the road.

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AUGHT TIRES



INVINCIBLE AS THE DREADNAUGHT

DREADNAUGHT TIRES, sure-footed and dogged, reach their destination even as our fleet of battleships storm through to their objective point. The demand for DREADNAUGHT TIRES throughout the United States is the sensation of the tire world. Internal friction, the enemy within, is largely overcome by the DREADNAUGHT process of frictioning the fabric and by the use of a very heavy skim coat between the plies.

5,000 MILES GUARANTEED

DREADNAUGHT TIRES are made in two treads—the DREADNAUGHT reinforced Vacuum which has solved the skid problem and the DREADNAUGHT Ribbed Tread which supplants the old-time plain tread and is universally the front wheel favorite.

SUPER-DREADNAUGHT RED INNER TUBES retain their elasticity and velvety softness to the last mile. They are generously thick. When used in conjunction with the DREADNAUGHT casing they make the perfect tire.

MANUFACTURED BY

The Dreadnaught Tire and Rubber Company

BALTIMORE, MARYLAND

We have an exceptional proposition for dealers and assure excellent service and territorial protection with intensive co-operation from our organization. Write or wire, Department "E."

CHAS. F. U. KELLY, Inc., *Sales Department*, 1834 Broadway, New York

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Read What Car Owners Say:

Rev. H. Voisin, Red Deer, Albta, Canada.
So far your carburetor has given me good satisfaction; several times I have averaged 30 miles to the gallon. Sept. 17, 1917.

Methodist Episcopal Church, Gustave A. Frodie, Pastor, Blunt, South Dakota.
Some time ago I ordered a Ford size carburetor from you. After a good test I find it to be THE Carburetor. Sept. 8, 1917.

W. T. Thompson, Maricopa, Cal.
I have purchased one of your carburetors and I like it fine and would like to take the agency for them for the State of California or if not for the whole state would like for Kern County. Please send me your lowest price and all your particulars as soon as possible as I have three sales in view. August 30, 1917.

P. H. Grace, Los Angeles, Cal.
The carburetor received and I make 35 miles to the gallon of distillate. Sept. 12, 1917.

Chas. H. Wishmeier, Indianapolis, Ind.
Carburetor received and after attaching on Saturday last I drove the car 128½ miles, part of this trip through Brown County, the hilliest part of Indiana. Almost all the hills were very rough, making it impossible to attempt them on high, one especially being three miles over, took us a half hour to cross, all of which was run on low. I was following a friend of mine who also had a Ford standard carburetor and found that when we came to a hill where the roads were good I would have to lie back about a quarter of a mile behind him, as even with this distance between us I would almost always catch him before he got to the top, then have to follow him up the rest of the way on low. My wife used to be afraid of every little hill but after putting on the SUNDERMAN she said she is willing to go any place now. When we got home after this 128½ mile run I found that I had used just 5 gallons of gas, almost 26 miles per gallon. I certainly was well pleased as I made no effort to run the car to save gas. The best I have ever done before was 22 miles per gallon all on a level road. August 6, 1917.

Edw. G. McCarthey, Denver, Colo.
I received and installed your carburetor yesterday; after two hours test I found it to be just as you claimed. I would like your agency proposition as I have a large order for you.
Sept. 18, 1917.

John L. Bradley, 243 W. 50th St., N. Y. C.
Since having your carburetor attached to my car I have increased mileage very near double, that is from about 14 I was getting to close to 28 miles with it on. I have out of necessity had to put this car through the severest tests demonstrating our shock absorbers, and you can see from this that the saving in gasoline alone is really remarkable, and with this the increased power I have received makes it an *ideal* carburetor. Sept. 28, 1917.

Standard Poster Advertising Co., E. T. Broderick, Gen. Mgr., New Rochelle, N. Y.
I want to say right here if it wasn't the best I could find, price and all considered, that I would not have anything to do with it, and here in New Rochelle I have an Oakland 40 and three Fords using the carburetor and in Peekskill two Fords, and am anxious to get it on the Cadillac.
Oct. 10, 1917.

W. H. Fisher, Grand Rapids, Mich.
The writer has now used one of your carburetors a little over one year and am more than pleased with the results as I am getting very good mileage, and it gives me more power and speed. Made a trip down in Ohio a couple of weeks ago and averaged a little better than 27 miles to the gallon. Oct. 17, 1917.

R. F. Sturgeon, Empress, Alberta, Canada.
The carburetor you sent me is doing great work. Have got as high as 30 miles on a gallon with my 1913-Buick. I used to think I was doing fine if I got 15 miles out of the old one. I just put in new cylinders in the car as the old ones were scored, so there is no telling what I will get now, as I made the 30 with the scored cylinders. I made one trip 155 miles actual mileage (not speedometer) on 5 gallons (Imperial) of gasoline with three badly scored cylinders and a lot of oil working through above the pistons. Am perfectly satisfied with the carburetor. Sept. 20, 1917.

Elmer McKee, Richmond, Indiana.
I am using one of your carburetors with very good satisfaction on a Lexington car.
Oct. 25, 1917.

D. Q. Johnson, Santa Rosa, Cal.
I received the carburetor and it works at all times to perfection, making the old Buick "40" run like a modern car. Oct. 7, 1917.

Our Satisfied, Enthusiastic Money-Making Dealers

Our advertising is an easy job. In every mail, every day, surprised and satisfied users, contented dealers who are making profits on Sunderman Carburetors, write us enthusiastic letters of endorsement. Printed just as they come to us, they make excellent advertising copy.

They Prove the Value of the Sunderman They Prove the Market and the Profits

The Sunderman Carburetor is without a peer in the field of automobile accessories and parts—it is the only instrument that will make substantial profits for dealers, and at the same time make more money for the car owner who buys it.

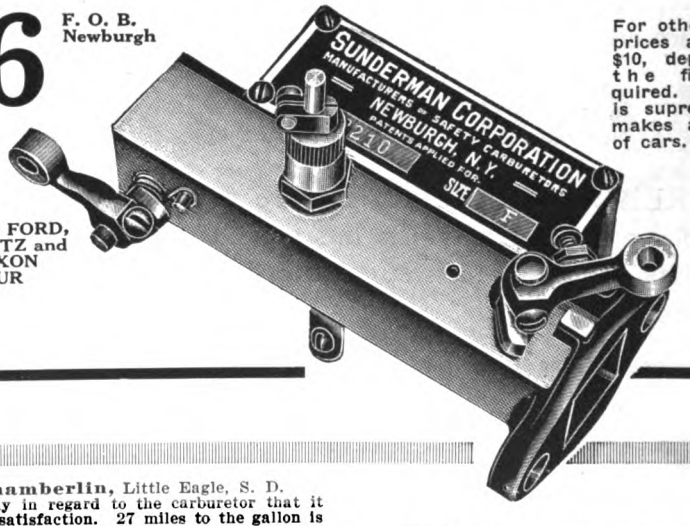
The Saving in Gasoline Pays the Owner a Perpetual Profit

The Sunderman Carburetor is uniformly saving from 30 to 50% in gasoline on every car. Look at the letters on the left of this page, and let the owners prove this statement.

This saving alone sells the carburetor—the extra power, flexibility, pick-up and hill climbing ability come as good measure—an unexpected dividend on the investment.

SUNDERMAN Vacuum Carburetor

$6 F. O. B. Newburgh



For other cars the prices are $8 and $10, depending on the fittings required. Its service is supreme on all makes and models of cars.

For FORD, METZ and SAXON FOUR

O. W. Chamberlin, Little Eagle, S. D.
I will say in regard to the carburetor that it gives good satisfaction. 27 miles to the gallon is about the best we have done, but the roads are very bad and twenty miles is very good, in fact, about 15 is the average for a Ford. My Ford is mechanically in bad shape, which I expect to remedy and then will give these people something to think about. Oct. 7, 1917.

Chas. C. Kneeland, Groveland, Mass.
In regard to the carburetor I received from you a short time ago will say that I installed same on my Maxwell Roadster and find it is the best thing in the line of a carburetor that I have ever seen, in fact I am doing stunts with my car that seem impossible to the average car owner. I gave a demonstration to a friend of mine and on the strength of it I am ordering one for him. May 20, 1917.

F. H. Pierson, Poughkeepsie, N. Y.
I am sending you carburetor which I used on my Maxwell car with such good results that when I disposed of it I removed the carburetor, which I wish you would change and adjust so I could use it on my Ford. May 17, 1917.

H. W. Stebbins, Watertown, N. Y.
I am using one of your carburetors on a 22 H.P. Motor with so much satisfaction that I beg to inquire if you recommend that the same will work equally as well on a 8-10 H.P. 4 cyl. 2 cycle Motor. June 15, 1917.

Bourne Brothers, House Painters and Interior Decorators, Milton, Mass.
I have had one of your carburetors put on my Ford truck and am much pleased with it.
July 16, 1917.

D. G. Douglass, Washington Mills, N. Y.
I bought a carburetor from you last year and it certainly did fine work. My Overland never ran better since I had it than since I have installed this carburetor. July 2, 1917.

F. E. Howard, Faribault, Minnesota.
Have a Sunderman Carburetor on a Reo car and it works OK. Will run on kerosene when the motor is hot. July 12, 1917.

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Users, and Our Hustling Have Written This Ad.

The Sunderman Principle Is Right— It Is Sure, It Has Been Proved

Designed on the only fundamentally correct plan, which produces finer vaporization, therefore quicker, more complete combustion and consequent greater power, the Sunderman Carburetor is the marvel of present-day carburetion.

CAR OWNERS—Don't Delay—Save Gasoline and Money all Winter —Buy a Sunderman Today.

DEALERS—Look to the right, and read what your fellow tradesmen say. Profit speaks in every line, satisfaction and service in every letter. Get hold of our proposition to-day—and then talk to us at the Shows.

Exhibiting { New York Show, Grand Central Palace, Space D-8
Chicago Show, Armory Balcony, Booth 5

SUNDERMAN CORPORATION

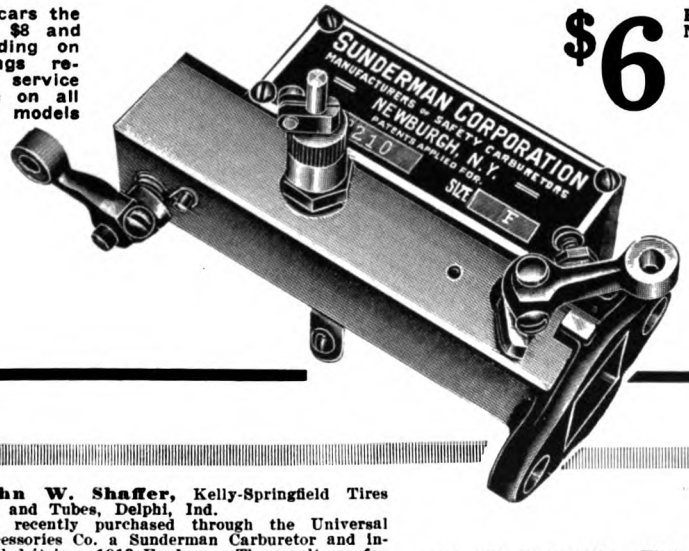
9 CHAMBERS STREET NEWBURGH, N. Y.

WESTERN BRANCH: 403 Kresge Bldg., Detroit

SUNDERMAN

Vacuum Carburetor

For other cars the prices are $8 and $10, depending on the fittings required. Its service is supreme on all makes and models of cars.



$6 F. O. B. Newburgh

For FORD, METZ and SAXON FOUR

John W. Shaffer, Kelly-Springfield Tires and Tubes, Delphi, Ind.
I recently purchased through the Universal Accessories Co. a Sunderman Carburetor and installed it in a 1913 Ford car. The results so far have been so surprising that I am writing in regard to territory. June 20, 1917.

A. M. Lockett & Co., New Orleans, La.
So far as economy is concerned, we do not think that your carburetor can be excelled, as the mileage obtained with the old carburetor was from ten to eleven miles per gallon of gasoline, whereas we are now getting from eighteen to nineteen miles per gallon. May 25, 1917.

The New Adirondack Garage, T. J. Lynch, Prop.
Kindly ship me two more carburetors for small Saxon four-cylinder runabout cars. I have used four or five of them and can place at least 100 more. They are giving entire satisfaction and great mileage. May 24, 1917.

J. Bergquist, Fitchburg, Mass.
Have received and tested out Ford Carburetor you sent me recently. Find that it is working very good and I could without doubt sell a large quantity of them in this district. June 4, 1917.

Simmons Hardware Co., St. Louis, Mo.
Recently we wired you an order for a SUNDERMAN CARBURETOR to be used on a Ford car. This carburetor was for one of the employees of this firm and he states that it is giving excellent service. June 12, 1917.

H. H. Palmer Garage, Bishop Hill, Ill.
I sent to Chicago and got two of your carburetors and put them on Ford cars and they worked fine. June 22, 1917.

P. H. Brown, Auto Repairing, Chepachet, N. Y.
I installed one of your carburetors on a Ford car and it worked so fine would like to sell them. July 27, 1917.

Dealers Who Handle Sunderman Carburetors Write as Follows:

Redden Motor Truck Co., Inc., 235 West 58th Street, New York.
Recently it was brought to my attention that the Sunderman Carburetor was a decided gasoline saver on a Ford car, and as my firm are always on the lookout for anything that will reduce the operating expense of a Ford car, I took it as a personal matter to try out one of your carburetors. The performance of the carburetor is certainly satisfactory in every respect. I notice that it is hardly ever necessary to use a throttle when on country trips, as the carburetor seems to be in itself an automatic throttle when coming on to grades or when pulling is hard in heavy going. As for gasoline economy, on my last trip I used a trifle over 6½ gallons of gasoline on the run from Albany to New York. I certainly appreciate your arranging to have a service man at your factory on a holiday to attach a carburetor to my car.
Yours very truly,
L. S. HIGHAM, Sales Manager,
November 23, 1917.

Motor Car Equipment Co., Indianapolis, Indiana.
Received the carburetor and after installing it and getting the proper adjustment it certainly does work fine. Would like to try out one or two more before ordering in quantities. July 2, 1917.

The City Garage, Terlton, Okla.
Your carburetor arrived and we placed it on the Ford car and every one that has tried it thinks it works fine. July 11, 1917.

Russell & Wineland Auto Repair Co., Berwyn, Neb.
We received the SUNDERMAN VACUUM CARBURETOR a few days ago and have tried it out on my Maxwell and find it very satisfactory. We want to handle them here. May 14, 1917.

Thomas McClusky, Los Angeles, Cal.
I will write you again in regard to the SUNDERMAN CARBURETOR, as I have so many calls for them and I could install lots of them, as every one that rides with me in my car wants me to get them one, and I tell them I will have some of them on hand shortly. If you can't do any better, send me literature and the prices so that I can satisfy those that I have promised. If you want me to have the agency let me know, and if so send me a half dozen at once, and by that time I can have you to send me fifty or more. And let me know the best price on them by large amounts. It would be impossible for you to get this little carburetor away from me if I could not get another one. Oct 6, 1917.

Crown City Sheet Metal Works, Pasadena, Cal.
I am using one of your carburetors on a Ford machine which is giving almost double the mileage the one I took off did. I have never seen any carburetor to equal it. The machine runs smoother, with more power, and starts almost always on the first turn. Oct. 12, 1917.

Neikirk & Miller, Hardware Specials—Buggies, Implements and Autos, Greenspring, O.
We received carburetor for Ford car and have been using it since and have found it to be very satisfactory. June 14, 1917.

United States Automobile Supply Co., Omaha, Neb.
We have had very satisfactory results with the SUNDERMAN CARBURETOR and hope to greatly increase our sales in the near future. Oct. 24, 1917.

T. J. E. Pinson, Platte Center, Neb.
Once more I am impelled to write you about your carburetors. I now have 43 here working in good shape, they fire the engine all right, pull all right and have plenty of power. July 29, 1917.

Groveland Street Garage, Haverhill, Mass.
I ordered 6 carburetors yesterday, the 30th, and I wish to change that order and make it 12 in all, 10 Fords and 2 Maxwells. I wish to say that the carburetors are performing some wonderful stunts on the cars I have put them on. July 31, 1917.

G. D. Gates, Albion. R. D. No. 4 Pa.
Received the carburetor, and the Sunderman is the best I have ever used. I have sold a number of your carburetors and they all give good satisfaction. June 9, 1917.

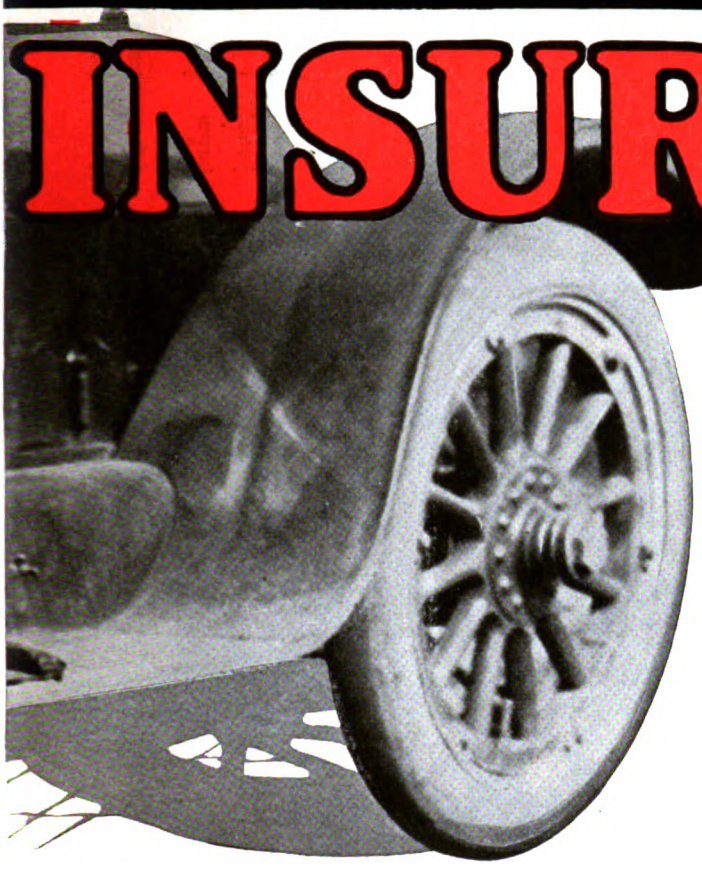
N. J. Floan, Hibbing, Minn.
Received your carburetor last week. had it installed and it works fine. I can sell quite a few here and would like to get agency for same. May 23, 1917.

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INSURANCE



DONT think of the brake lining you sell as representing merely a certain sale—a certain profit. Look past this to the big, vitally important purpose that brake lining must serve and to the responsibility it must assume. And think in how great degree this responsibility comes back to you!

GARCO BRAKE LINING

is real *Safety Insurance*. It is an essential. And because it protects the life of the man who drives a car the question of price does not altogether determine his choice. Garco Dealers make fair profits because they do not have to cut the price.

Garco does not fail. Our pledge of highest quality is back of every foot of it. Solidly woven from high grade long-fibre asbestos; re-enforced by hundreds of brass wires woven into each foot, Garco holds with giant grip down to the last shred.

Back of Garco Brake Lining we have put an unusually complete line of sales helps supplied to all dealers free of charge. Write us today—let us tell you about them.

Garco Brake Lining is sold by all Jobbers. Ask yours to quote you on your requirements. We also manufacture a full line of asbestos automobile specialties, Transmission Lining for Fords, etc.

GENERAL ASBESTOS & RUBBER CO., MAIN OFFICES and FACTORIES **Charleston, S. C.**

Branches and Complete Stock: 58 Warren Street, New York 311 Water Street, Pittsburgh
106 West Lake Street, Chicago

Pacific Coast Distributors, HUGHSON & MERTON, INC., 77 O'Farrell Street, San Francisco,
LOS ANGELES, 1229 South Olive Street PORTLAND, 326 Ankeny Street SEATTLE, 806 East Pike Street

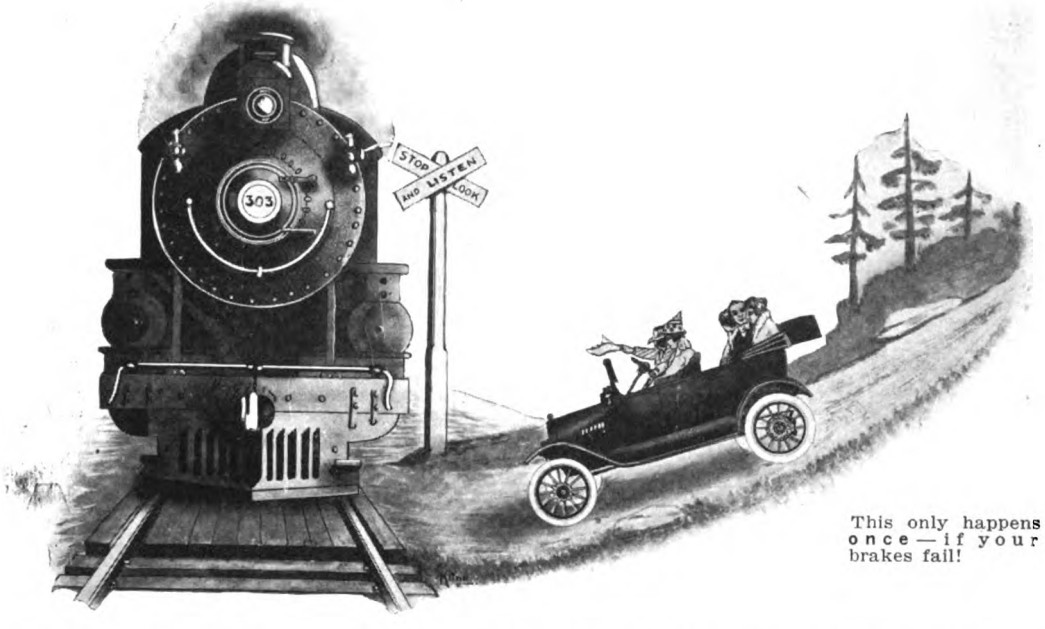
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Every Ford Owner in the Land Needs This!

Dealers are selling these fast. And for a very simple reason.

The "Pla-Safe Brake" for Fords is **needed.** Ford owners recognize its value on sight.

All you have to do is show it to them and call attention to the fact that it acts on the **wheel drum,** thus saving their gears and giving them the same degree of



This only happens once—if your brakes fail!

safety as have the drivers of high-priced cars, all of which cars have emergency brakes that act upon the wheel drums.

This is all our present dealers are doing and the result is magical.

Write or wire us TODAY!

Get in the game today. There are big profits in it for you. We boost your sales from the home office and our unusually generous discount makes it especially attractive to handle. Simple to install. No holes to drill.

Retail Price, $10.00

Fill out and mail this TODAY

Pla-Safe Co.,
Brookville, Pa.

Gentlemen:—

Please send me literature, prices, discounts, etc., regarding the Pla-Safe Brake. There are about ..... Ford cars in this vicinity.

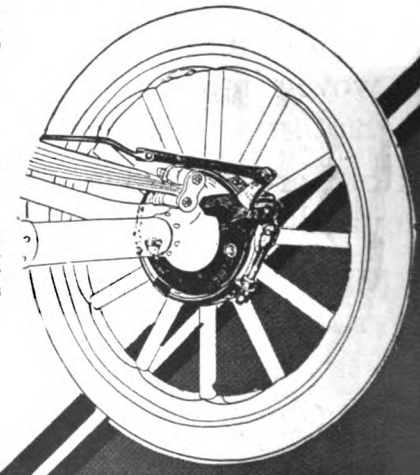
Name .....

Address .....

Pla-Safe Co.

successors to
L. A. Leathers Co.
Brookville, Pa.

The hub drum is the **right** place for an **emergency** brake. Ford owners know this.



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SEE THE EXHIBIT AT THE NEW YORK SHOW (BOOTH D 141)



THE KLEAR-SIGHT KEEPS THE WINDSHIELD CLEAR

TRADE-MARK REG. U. S. PAT. OFFICE

The Most Efficient Windshield Cleaner



If you, who read this ad are a DEALER in Auto Accessories, or a Motor Car AGENT, or an automobile MANUFACTURER or an OWNER of a **Car**—then you **need** this ***remarkable windshield cleaner***—either to sell to the public or to ***use it yourself***—

Try it on **your** windshield on a **rainy** or **snowy** day—watch it work—see how efficiently and rapidly it takes off ***water or snow,*** with just a **quick, easy** motion across. No **fuss**—no **bother**—nothing to get out of order. Just plain, **everyday** simplicity—that's the **"Klear-Sight,"** and ***you*** need one NOW.

Price at Retail Everywhere, $2.00

THE U-AUTO-C CORPORATION

Dealers—
WRITE FOR DISTRIBUTING TERMS AND TERRITORY

2156 Broadway (at 76th Street), New York

Patentees and Exclusive Makers of the KLEAR-SIGHT Windshield Cleaner

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When writing advertisers please mention Motor World—it identifies you

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TACHABLE TON WHEELS

FOR FORD AND CHEVROLET CARS

Big Business All Winter

With the increasing popularity of Sedans and Coupelets for winter use, Dayton Wire Wheels present great opportunities to dealers for added winter business.

Quick change in zero weather, safety from collapse when the car skids, 25% more tire mileage because of the wonderful resiliency, longer life to the car because it is "cradled" by these suspension type wheels, the final touch of elegance which "Daytons" add to a Sedan or Coupelet, are just a few of the reasons why every closed car owner is a live prospect for Dayton Wire Wheels. Climatic changes do not affect the strength and beauty of "Daytons." Sold in sets of five and are very easy to equip.

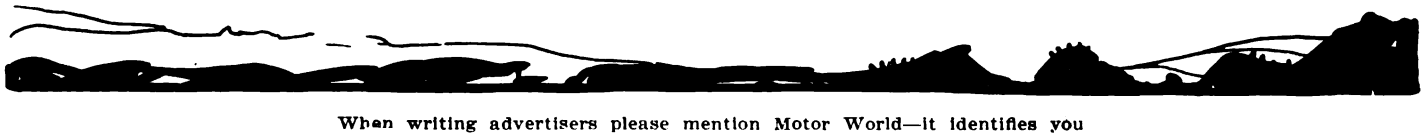
DEALERS AND JOBBERS

Dayton Wire Wheels insure more winter sales, more profits and more satisfied customers. Order today.

DELIVERIES NOW!

Dayton Wire Wheels will be on exhibition at the Astor Hotel, New York City, during the New York automobile show, and at the Annex Hotel, Chicago, during the Chicago automobile show.

THE DAYTON WIRE WHEEL CO., 826 Miami Road DAYTON, OHIO



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THE TOP AT THE TOP

DETROIT

DETACHABLE

WEATHERPROOF TOP

Cold Facts About Warm Cars

Cold Weather Talk for Closed Car Dealers

Dealers are realizing that most motorists really want a weatherproof top. You don't have to create a desire in order to make a sale. The desire is already created—leave that to the weather that comes along about November or December. Your prospect wished he had a weatherproof top last evening when he drove home in a biting storm. He wished it again when he took his family to the theatre. He wishes it on every raw, bitter, winter day that he drives his car.

If you are not already a dealer for Detroit Detachable Weatherproof Tops, here are a few points for your information. There's nothing offered by sedan, coupe, landaulet, limousine, that the Detroit Detachable Weatherproof Top does not give the car owner at a fraction of car price. It's enclosed, snug and weatherproof. It won't rattle or work loose. It's lined inside with rich limousine cloth. Doors, front and rear are oversized and of flexible unbreakable material—contain no glass. They raise to any height and stow into the top. Side panels can be removed for summer driving, making a fine open car.

Retail Price List

For the present we manufacture tops for the following cars only:

Ford Touring	$ 87.50	Buick D45 Light 6	140.00
Overland Model 83-5 Pass.	115.00	Hudson Super Six Touring (including 3 piece built-in windshield)	190.00
Chalmers 6-30-5 Pass. (including rain vision visor to be fitted to standard windshield)	97.50	Chevrolet Model Four-ninety 16-17-18	110.00
Chandler 1917, 1918 (including 3 piece built-in windshield)	185.00	Maxwell Roadster	130.00
		Maxwell Touring.	145.00

Display a Detroit Convertible Weatherproof Top

Detroit Weatherproof Body Company

104 Saginaw Street Pontiac, Michigan

(2)

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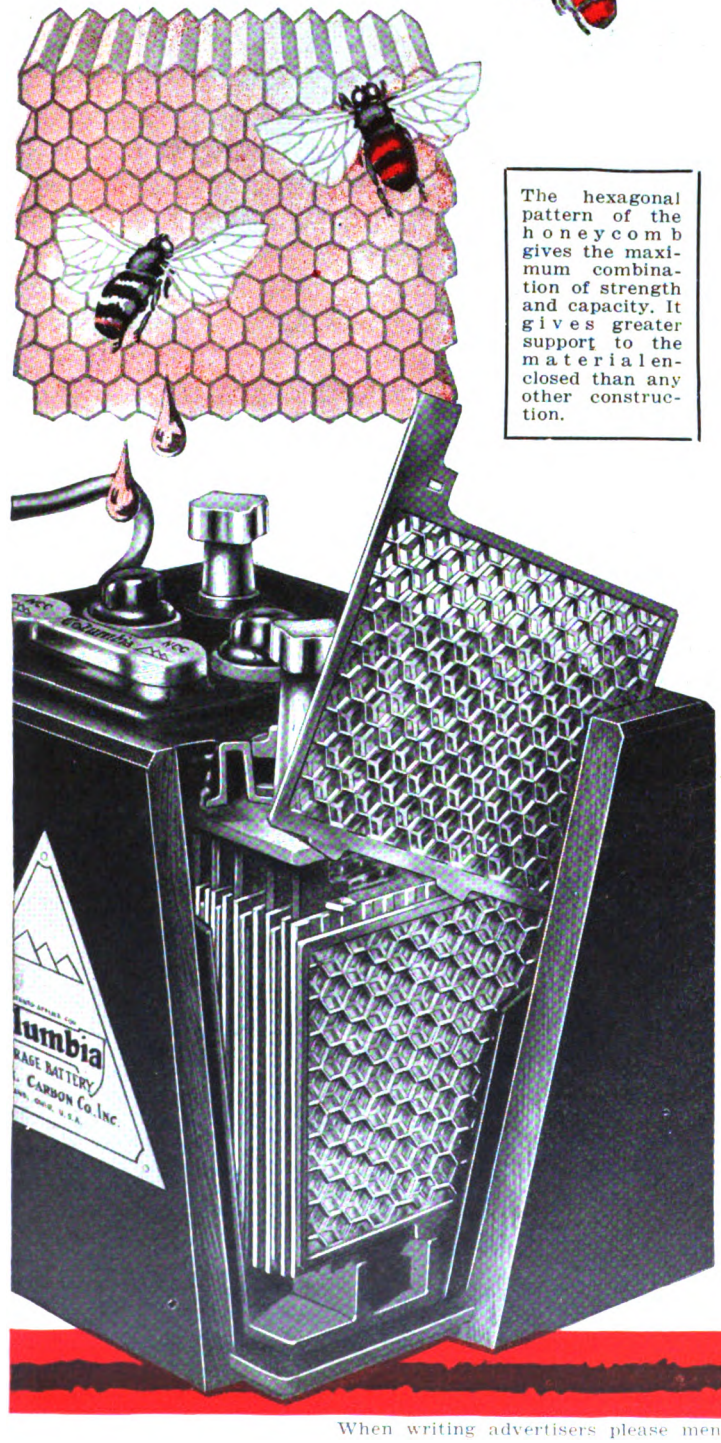
THE SIOUX WAY

Start the Valve Grinding job right with the Sioux Valve Seat Reamer and the Sioux Refacing Tool. They do the heavy work in a few minutes, leaving just the finishing touches for the grinder. Saves time and boosts profits. Complete set as illustrated, price $22.50 (Liberal Discount to Dealers). Sold by all live jobbers.



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Columbia Storage Battery



The hexagonal pattern of the honeycomb gives the maximum combination of strength and capacity. It gives greater support to the material enclosed than any other construction.

With the honeycomb grid

We have taken our tip from the honey-bee. In a cell which not only is the strongest mechanical construction, but which also holds its contents securely braced in every direction, the bee packs away his golden store of honey. In a grid of this same honeycomb construction, we pack away a golden store of profit for you.

For, realizing that the most vital part of a storage battery is the plates, we have so constructed the plates of the Columbia Storage Battery that they will back a real guarantee, a *definite* guarantee of capacity, performance, life, and service.

This design—exclusive to the Columbia Storage Battery—gives the maximum area of active material, the greatest and most uniform conductivity, and the greatest resistance to buckling for a given weight. This ability to withstand abuse comes from the hexagonal shape and the way the cells on opposite sides of the plates are "staggered," so that each side reinforces the other, and the active material interlocks in all directions.

You can see how this gives strength where strength is needed: the result is Service when Service is needed.

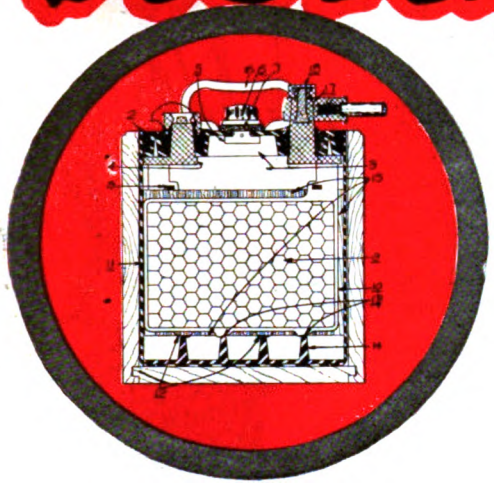
It is the ability of the Columbia Storage Battery to give continuous service, rather than continually *require* it, that makes a Columbia dealer an unusually profitable connection.

Our new plan of distribution is entirely different from the general scheme commonly followed. Our plan makes it possible for you to build up a highly profitable storage battery business without incurring the expense and investment of installing complete service station equipment and stock.

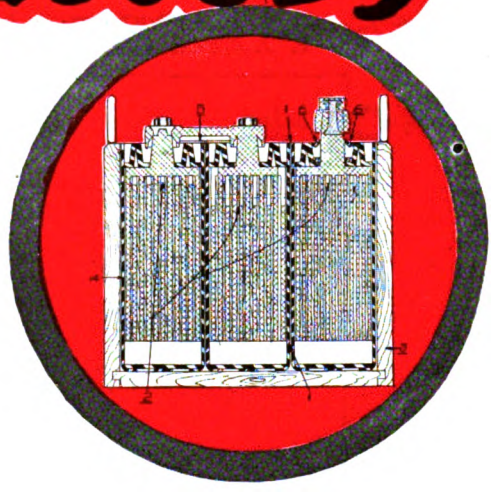
National Carbon Company, Inc.
Department R **Cleveland, Ohio**

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Columbia Storage Battery



THE honeycomb grid described on opposite page is but one of 18 distinctive features, every one of which is a Columbia point, not merely of difference, but of *superiority.*



1. Connector Skirt—Automatic Capillary Seal holds the sealing compound in contact with post. Simpler, more permanent, more positive and effective than hard or soft rubber.

2. Sealing Well—Affords the maximum sealing surface from the interior of the cell to the exterior. No heavy, unsightly compound used. Smooth, neat appearing top.

3. Acid Space—Largest possible for restricted dimensions. Permits rapid radiation, quick cooling, and less frequent flushing or addition of water.

4. Chilling Ledge—Instantly cools compound when poured into sealing wells. This, with tight-fitting cover, prevents sealing compound flowing into cell. Eliminates one common cause of short circuits.

5. Vent Plugs—Bayonet catch design with ample grip, locks tight with simple quarter-turn, and prevents loss of electrolyte by splashing. Large hole permits easy inspection of plates, separators, and solution level.

6. Vent Outlet—Cannot become clogged with dust or other impurities or allow same to be washed back into cell. Location near base prevents any expelled electrolyte coming in contact with fingers.

7. Vent Gasket—Of soft rubber, prevents acid creeping or leaking.

8. Separator Retainer—Flat hard-rubber strip. Furnished in lengths which are simply pushed into position and snapped off with fingers. Cannot be dislocated to allow separators to float, causing short circuits.

9. Honeycomb Grids—An exclusive Columbia feature, gives greatest and most uniform conductivity and the greatest resistance to buckling for a given weight. Pellets interlock and the grid is reinforced in all directions. Great toughness, tensile strength, and ductility.

10 and 11. Staggered Plates—Positive elements are kept against one side of jar and negative elements against other. Separators fit jars tightly and extend beyond each side, top, and bottom edges of the plates, thus effectively preventing plate sediment from collecting across positive to negative plates at side and consequent short circuiting.

12 and 13. Inclined Plate Feet—Inclined feet force the plate against the edge of the cell. Holds this element rigidly in place, thus preventing breakage of jars, chafing, and destruction of separators.

14. Four Jar Ribs—The use of four ribs strengthen the jar at those points where the great resistance to shock is required. They also prevent short-circuit by accumulated sediment. (See 12 and 13.)

15. Separators fit jars tightly and extend beyond each side of the plate and beyond the top and bottom edges of the plate, thus preventing short-circuit due to buckling and short separators.

16. Safety Handle—Fastenings not exposed to corrosion. Will sustain 25 times weight required. Adapted to all standard type holddowns.

17. Absolutely Universal Terminal—Requires no lead burning or skill to set properly. To adjust is the work of a moment. No tools required. It is impossible to connect a Columbia Battery in a reverse direction. Because of the universality of the Columbia Terminal, only five types of Columbia Batteries are needed to make replacements on more than 300 different makes and models of cars.

18. Clover Leaf Terminal Nut—Designed to give an easy firm grip of the fingers, and also to allow the use of pliers or a wrench without danger of damage.

Let us tell you about our new dealer and service plan which is entirely different from the general scheme of storage battery distribution. Makes it possible for you to work up a profitable storage battery business without expense of installing usual complete service station equipment and stock.

See Exhibits at Shows: *Space C-60, Third Floor, Grand Central Palace, New York City. Chicago, Booth 74, Coliseum Gallery*

National Carbon Company, Inc., Department R, Cleveland, Ohio

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Letters On LAMINUM

The MATERIAL for SHIMS

No. 4



CHAPEL HILL, N. C.

Laminated Shim Co.,
New York City.

Gentlemen:

I have been in the automobile repair business for the past seven years and I wish to state plainly that I never knew what bearing fitting pleasure was until I first came across a motor fitted with Laminated Shims, then the old frown disappeared from my forehead, and instead of a dread, and many bruised knuckles, filing and more filing, I found that there really was pleasure in bearing adjustments. The reason I used to dread the bearing fitting, when overhauling a motor, was because I could not get a true fit, and in many cases would have to tow the car to start it.

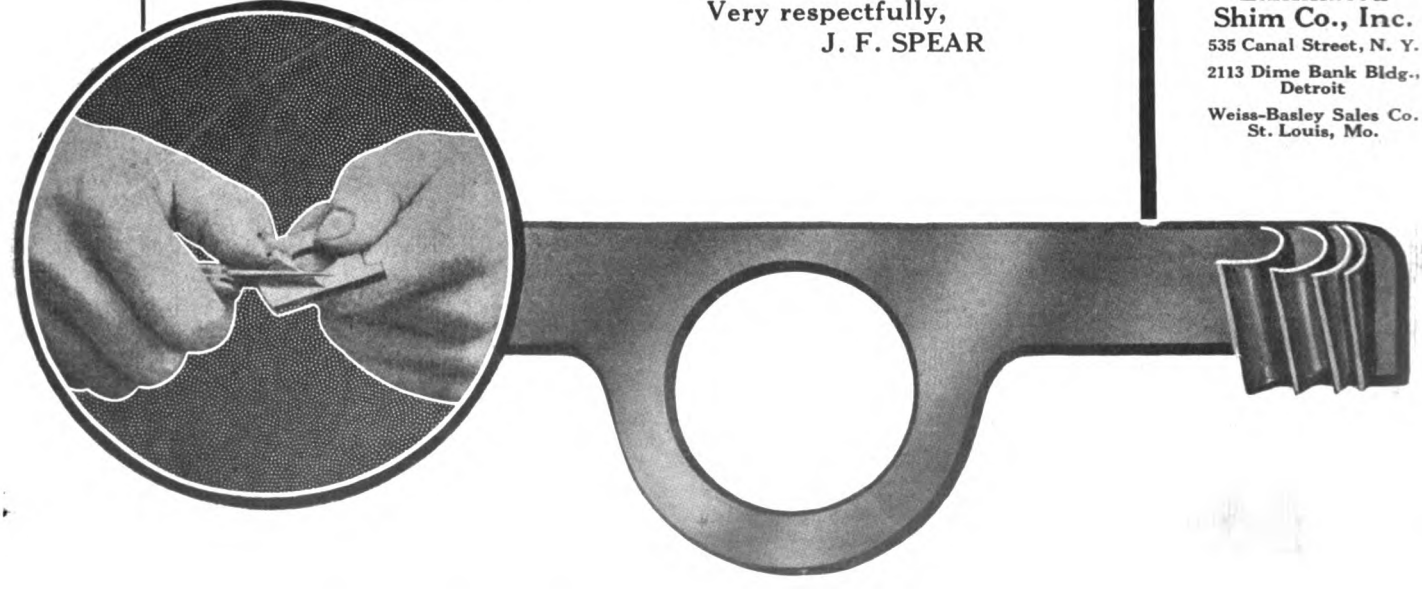
The Laminated Shim affords an adjustment like a new bearing, is just as solid as a new bearing, and there is positively no need in getting one too tight, and if you should happen to do this, you can pack one of the leaves and you have it any way.

I have been rushed with work a few times, and have a bearing job to turn up right in the middle of the rush, and of course every car owner wants his job done first or as soon as possible afterward, and the object is to turn out the work as fast as possible by the use of Laminated Shims the time can be cut in half, and often two-thirds of the trouble eliminated. *I only wish every car builder in the country would adopt them.*

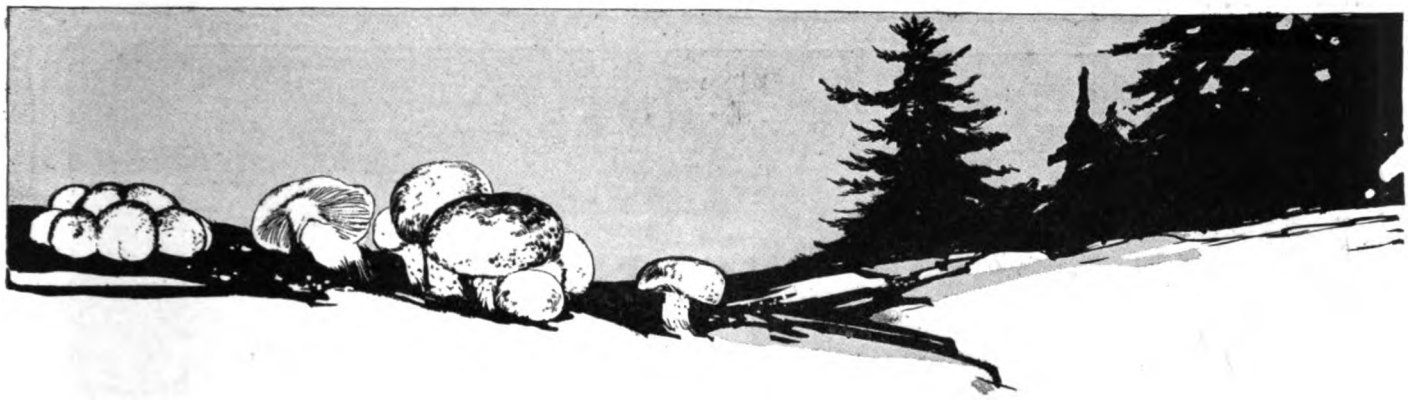
Here is the whole thing in short: No man can do a perfect job fitting a bearing with the filing process, and no man can make a failure when using Laminated Shims.

Very respectfully,
J. F. SPEAR

Laminated Shim Co., Inc.
535 Canal Street, N. Y.
2113 Dime Bank Bldg., Detroit
Weiss-Basley Sales Co. St. Louis, Mo.



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The Mushroom and the Evergreen

The mushroom: Proverbial for quick growth and decay—

The car which has a surface attraction does not bear fruits of profit without a firm organization behind it. It may, figuratively, spring up over night, cause a flurry and decay.

The evergreen: Remaining unwithered while the next year's leaves are expanding—

The car which combines mechanical superiority and physical attractiveness with the backing of a world-known corporation is a dealer's protection. It is going on and on.

STEPHENS *Salient Six*

is manufactured by the Moline Plow Company — an organization with fifty-two years' manufacturing experience and a paid-up capital of $19,000,000.

The Stephens dealer will have the co-operation of a huge industry which has endured and progressed on sound business principles—integrity and square dealing with its customers.

It is a satisfying feeling to be allied with such a business.

STEPHENS MOTOR BRANCH

OF MOLINE PLOW COMPANY

MOLINE, ILLINOIS

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BROWN-LIPE TRANSMISSIONS

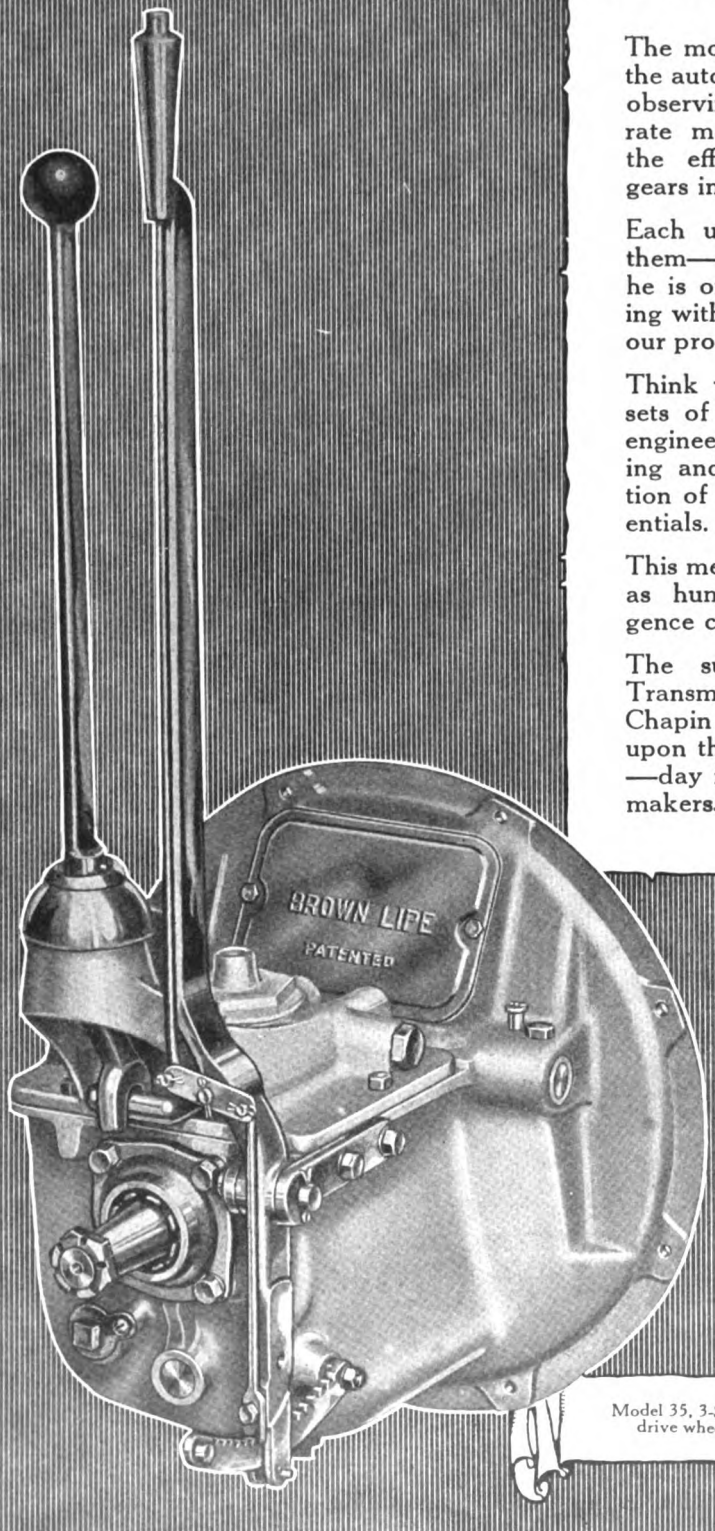
The most expert engineering skill in the automobile industry is constantly observing and following our accurate methods of manufacture and the efficiency maintained by our gears in service.

Each user—and there are 200 of them—is protected by the fact that he is one of the 200 who is working with us every minute to improve our production.

Think what it means to have 200 sets of inspection departments and engineers who are constantly studying and improving on the application of our transmissions and differentials.

This means a product as near perfect as human experience and intelligence can make it.

The success of the Brown-Lipe Transmissions and Brown-Lipe-Chapin Differentials has depended upon the tireless demands of service—day in and day out—for 200 car makers.



Model 35, 3-Speed, U.P.P. Transmits maximum power to drive wheels with minimum friction, noise and wear.

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BROWN-LIPE-CHAPIN DIFFERENTIALS

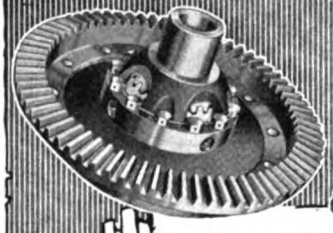
Since the very beginning of the automobile industry the design, quality and superiority of Brown-Lipe Transmissions and Brown-Lipe-Chapin Differentials have been recognized as the leaders in their respective fields.

Today 80% of the pleasure car and truck manufacturers use either one or both as standard equipment.

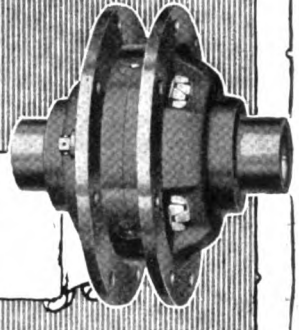
Our engineering departments will assist you in working out your transmission and differential problems. Write us

Brown-Lipe Gear Co.
Transmissions
Brown-Lipe-Chapin Co.
Differentials
Syracuse, N. Y.

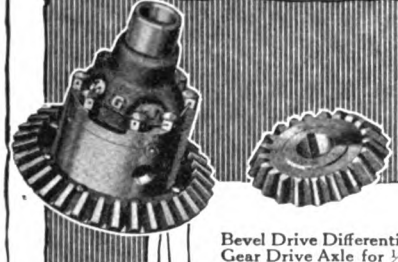
Representatives
New York: Thos. J. Wetzel, 29 W. 42d St. San Francisco: A. H. Coates, 444 Market St. Foreign Agent: Benjamin Whittaker, 2 Norfolk St., Strand, London, W. C.



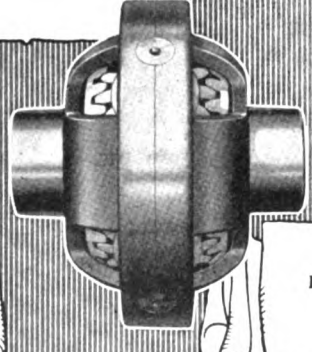
Differential for G. M. Co. Trucks used by Weston-Mott Co. Division of General Motors Co.



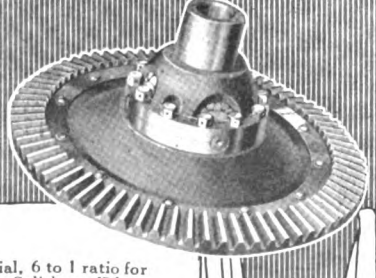
Differential for Worm Drive Axle, 1½- and 2-ton Trucks as used in the product—Timken Detroit Axle Co.



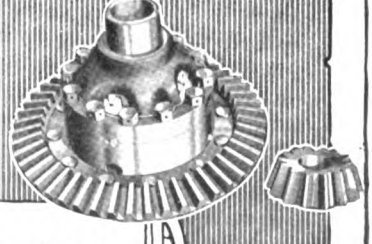
Bevel Drive Differential in Internal Gear Drive Axle for ½-ton Trucks as used by the Torbensen Axle Co. Used under Republic ½-Truck.



Bevel Type Differential for Worm Drive used by Sheldon Axle Co.

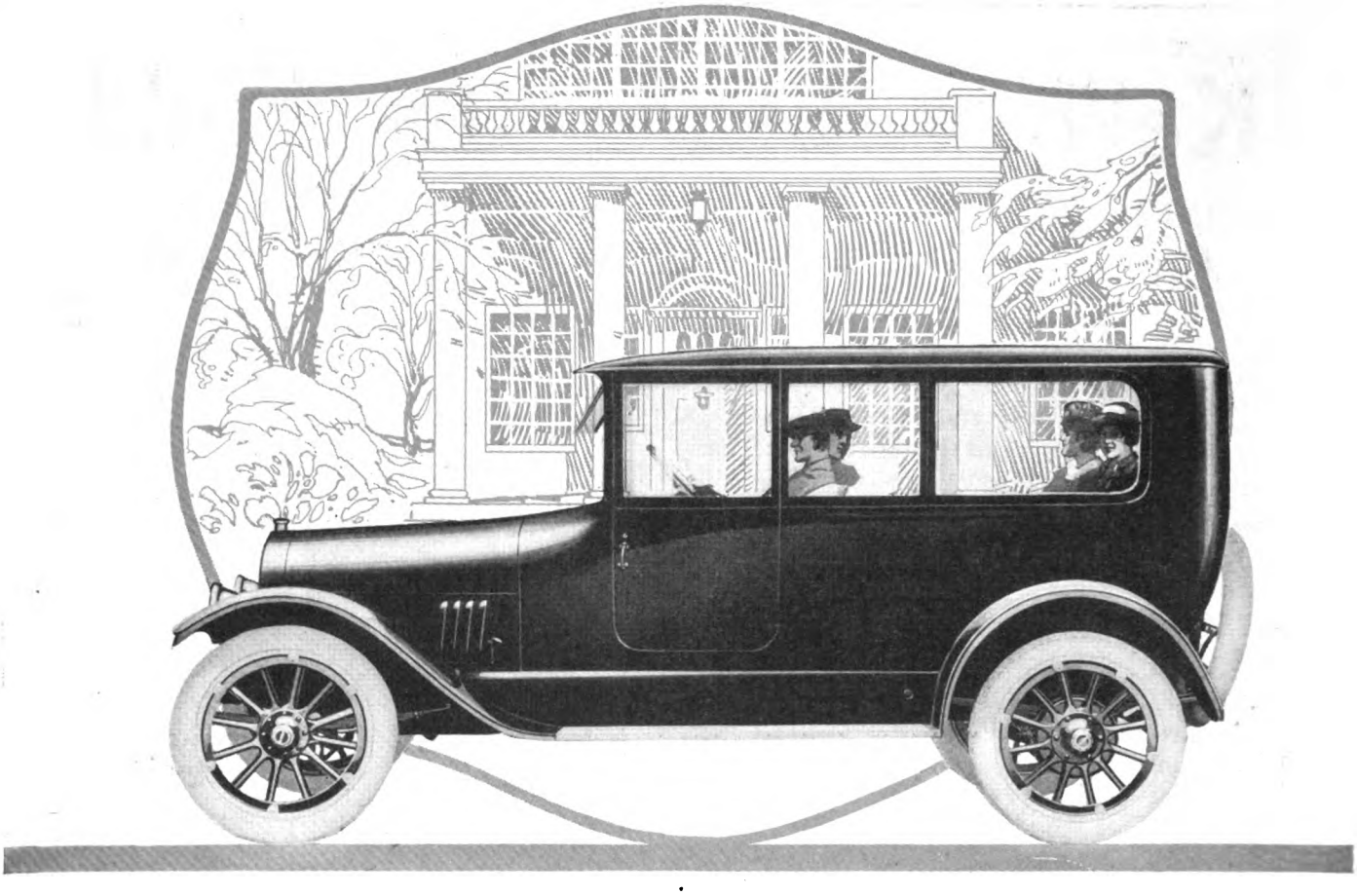


Bevel Type Differential, 6 to 1 ratio for Truck Axle mfg'd by Salisbury Wheel & Axle Co., Inc., Jamestown, N. Y.



Bevel Drive Differential used in Jackshaft Chain Drive as provided by Kelly Springfield Motor Co., in their 3½-ton Trucks.

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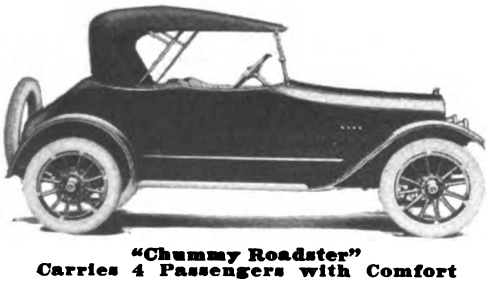


Paterson

SIX-New Convertible Sedan Offers the Perfect All-Season Car



Paterson 6-45
The Ideal Family Car



"Chummy Roadster"
Carries 4 Passengers with Comfort

It is complete.

For the discriminating buyer, who pays a moderate price, there is every conceivable convenience, every valuable comfort.

For the dealer, who caters to careful, patriotic buyers, the Paterson Six has to offer its full quota of equipment—backed by economy.

All the Paterson models are in the same plane with the new Convertible Sedan.

They are all complete.

5-Passenger Touring Car,	$1,265
7-Passenger Touring Car,	$1,295
4-Passenger Roadster,	$1,295
Convertible Sedan,	$1,795

W. A. PATERSON COMPANY
FLINT, MICHIGAN

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Kellogg Leads the Field

90% of all Engine-Driven Tire Pump Equipments Provide the Kellogg Engine-Driven Tire Pump

CAR MANUFACTURERS

Many of the leading car manufacturers are advertising the Kellogg Pump as standard equipment on their cars. They recognize it—and appreciate that motorists recognize it—as a distinct advantage to any automobile.

Recommended Exclusively

Many others recommend the Kellogg exclusively, and in preference to all other pumps, as special or extra equipment.

Superior Construction

Kellogg Pumps are noted for their superior construction, their long life and satisfactory service.

No Oil with the Air

Their design absolutely prevents oil being mixed with the air delivered to tires, yet all moving parts are constantly provided with ample lubrication.

CAR OWNERS

Almost half a million car owners throughout the world use and recommend the Kellogg Engine-Driven Tire Pump.

Dealers and Jobbers

Dealers and Jobbers everywhere know it is a quick seller and a certain satisfaction giver.

Good Profit

Any Dealer is safe in stocking up with Kelloggs. There is a good profit in them, they move fast and stay sold.

Prompt Deliveries

Our deliveries are prompt, our service satisfactory and courteous.

Full Guarantee

Our full guarantee accompanies every pump and is carried out to the letter.

Write us today for full particulars, generous terms and unusual sales helps.

KELLOGG Engine Driven Tire Pump

"No Oil Spray in the Air—Guaranteed!"

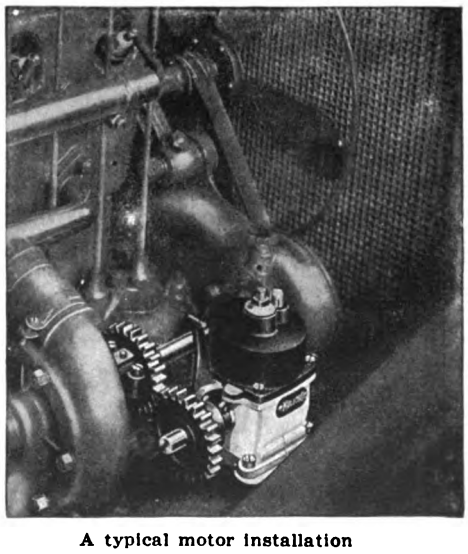
For the present season, fittings are carried in stock for equipping the following models of cars with Kellogg Model 101 and 201 Engine-Driven Tire Pumps:

Buick	Model D-34-35, 1917-18; D-44-45-46-47, 1916-17; E-49, 1918; E-50, 1918.
Chalmers	35 "6-30."
Chandler	Series 14-15-16-17-18.
Chevrolet	4-90. See special model.
Ford	See special model.
Dodge	See front end drive.
Hudson	Super Six.
Nash	1918.
Oakland	Light Six, 1918.
Oldsmobile	8-44-45, 1916-17-18.
Overland	85-4; 75, 75-B, 4-90 (See front end drive.)
Paige	6-38, 1917; 6-39, 1918.
Reo	Fifth, 1915-16-17-18; Light Truck, 6-cylinder.
Studebaker	Series 17-18, 4 and 6 cylinder; 19, 1 ton truck.

Price, $16.50 for complete equipment, which includes pump, installation fittings with diagram and full instructions for installing, air hose and tire gauge, carefully packed in carton.

Garage men, send for description of latest model J of electric motor driven garage pumps.

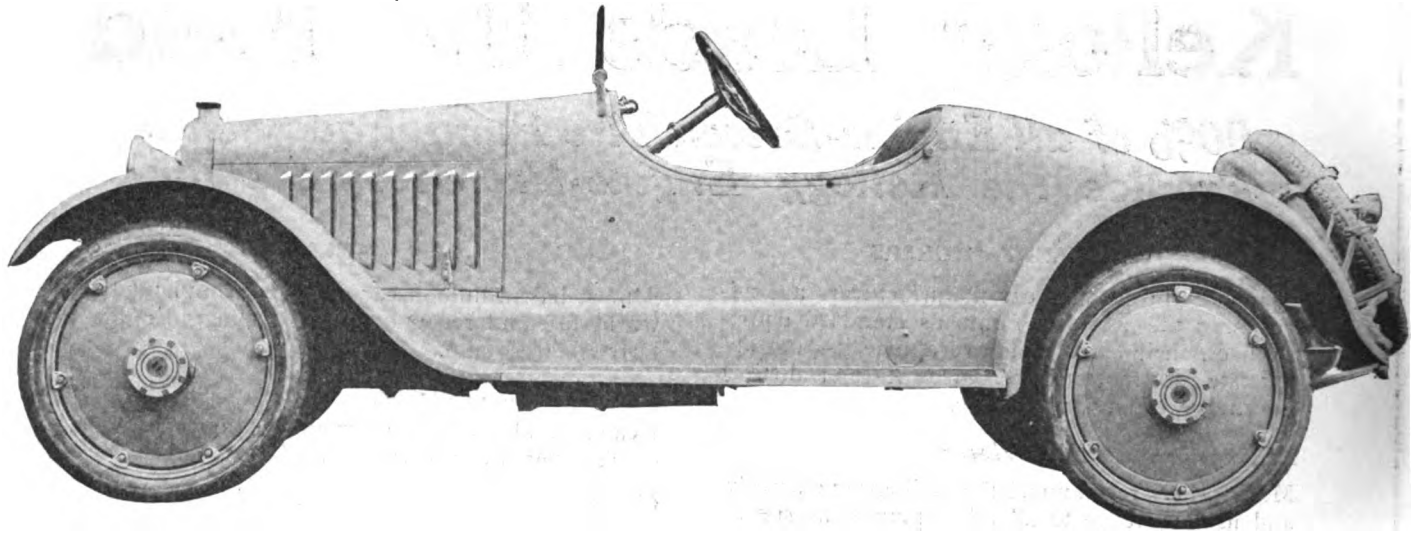
KELLOGG MFG. CO., Rochester, N. Y.



A typical motor installation

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"CHALMERS" "TURTLE DECK MODEL"



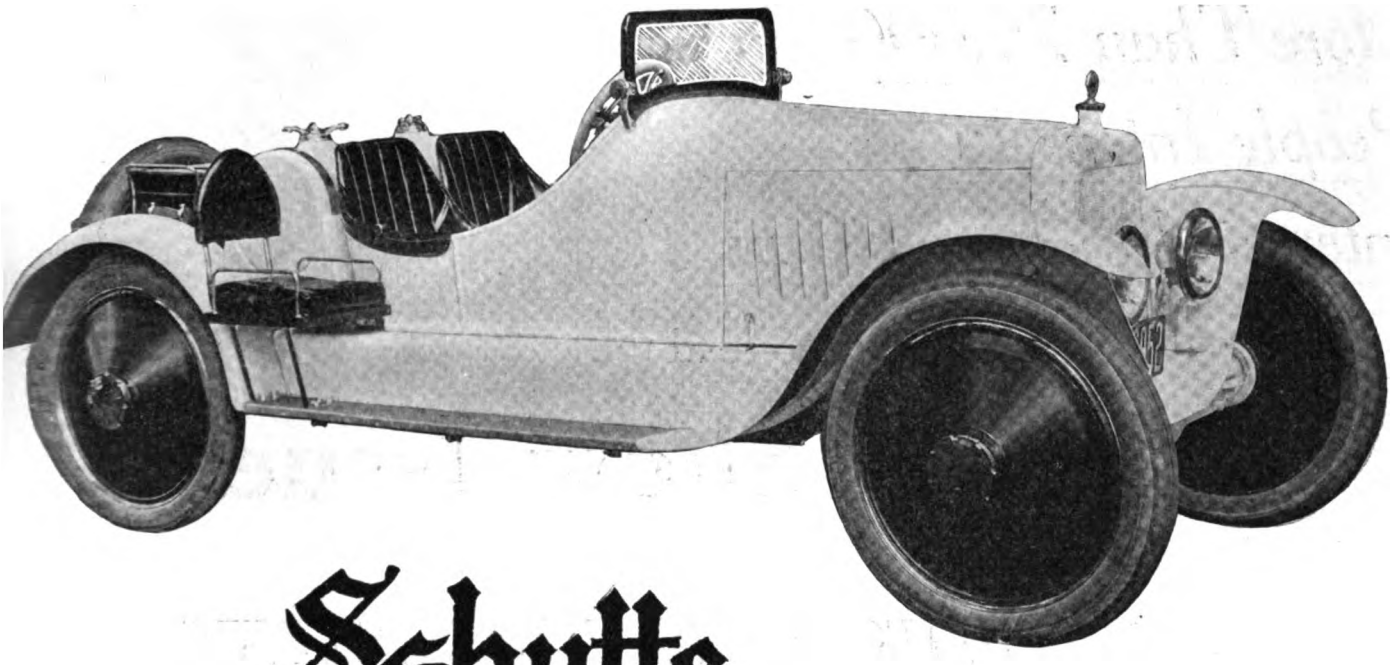
Schutte
DISC WHEELS
APPEARANCE

Nothing adds quite so much to the appearance of a car as a set of Schutte Discs. They are well made and light in weight, being formed from long drawn steel. The large, good-looking hub caps are of aluminum. The discs are easily mounted and are made to fit any style of wood or wire wheel. There will be several cars at the "Show" equipped with Schutte Discs. Full information sent on request.

CHARLES SCHUTTE BODY CO.
LANCASTER - PENNA. U.S.A.

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"MILITARY SPORT MODEL"



Schutte SPORT BODIES

SWEEPING LINES PLAIN SURFACES

Unusually smart appearance is noticeable in our body architecture. The color effects are very pleasing. We build the above style of body to fit any car by being given the make, model and serial number. If desired, we can furnish it with a neat, wide door on the right hand side, or the conventional folding top. This body may also be had with a very attractive convertible coupe top. At the "Show" you will see a rakish looking coupe with black top, black disc wheels, mahogany sash and the balance of the car finished in a pure silken white. It will appeal to you.

CHARLES SCHUTTE BODY CO.
LANCASTER - PENNA. U.S.A.

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More Than 75,000
People Intensely
Interested in Motor Cars

are going to read the

Big Show Issues

of

AUTOMOTIVE INDUSTRIES

New York Show Issue, Jan. 3
Chicago Show Issue, Jan. 24

and

MOTOR AGE

New York Show Issue, Jan. 3
Chicago Show Issue, Jan. 24

*Will **Your** Advertisement be There for Them to See?*

No more important advertising opportunity is presented during the whole year to the manufacturer of motor cars, parts or accessories.

The leaders in your line will be represented by strong advertisements in these issues. Your presence among them will be expected. Your absence will be conspicuous.

These issues will be preserved by their readers. The information they contain is of *permanent value* and obtainable *nowhere else* in just this shape.

*Get Your Order in **At Once** for Sufficient Space*
to Represent Your Product Properly

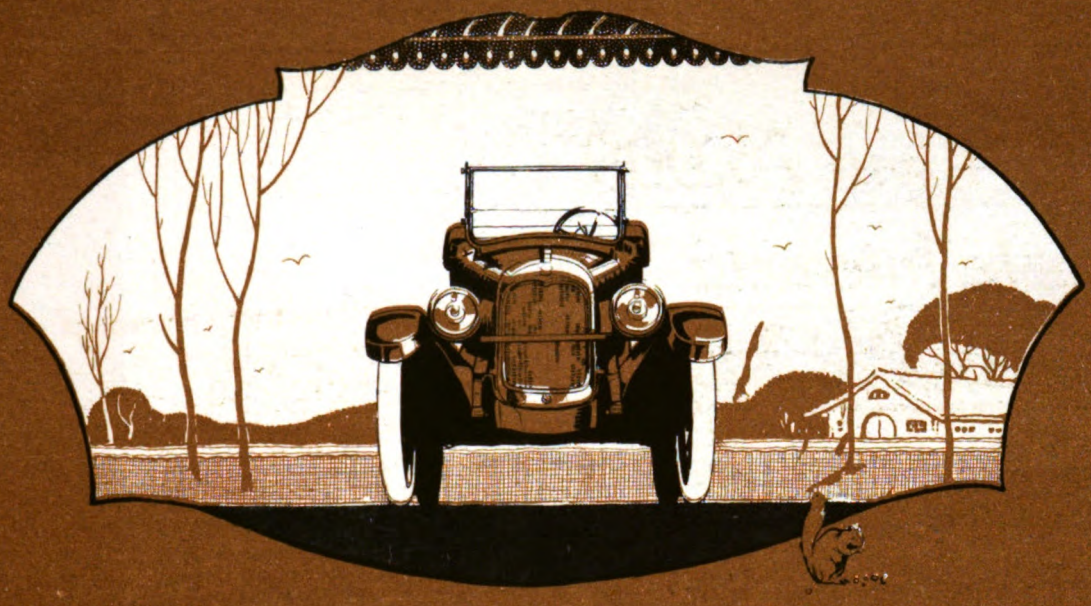
THIS IS THE LAST CALL!

New York: 239 W. 39th Street

The Class Journal Company

Chicago: Mallers Building

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ANNOUNCING THE NEW GRANT SIX

THIS is the largest and finest car that has ever carried the GRANT SIX nameplate—a car that is without real competition in its price class.

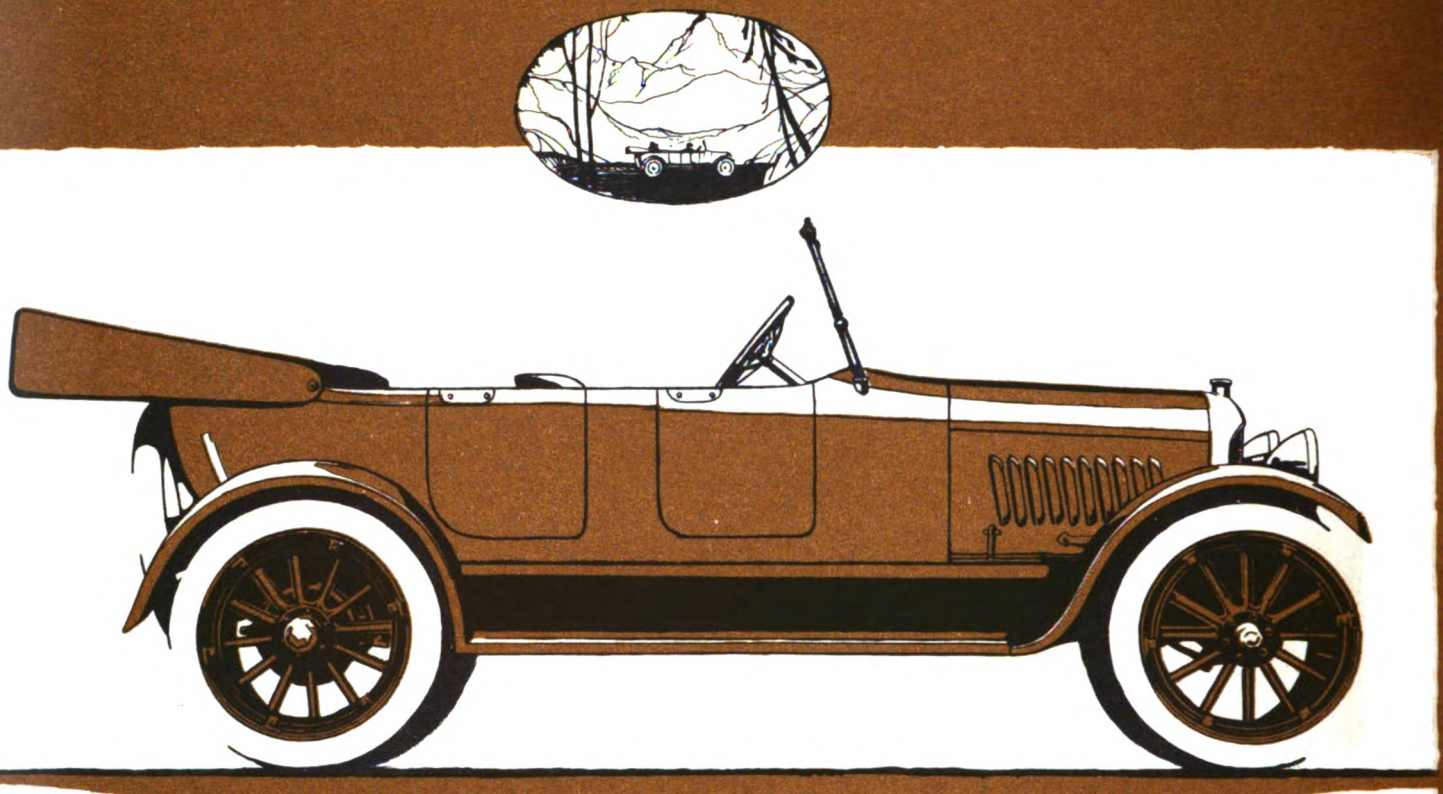
The individual beauty of its lines, its unusual size, and its extraordinary mechanical refinement, will make this new model one of the most talked-of cars of the coming season.

Its powerful, flexible and remarkably smooth-running engine is of the overhead-valve type with balanced crankshaft, forced-feed oiling and many other advanced features.

In piston displacement (180.2 cubic inches) and in S. A. E. rating (21.6 h.p.) this GRANT SIX engine is the largest six cylinder engine used in any car under $1200.

With its 114-inch wheelbase, 46-inch cantilever rear springs, full-floating rear axle, excess capacity electrical system, etc., it is obviously a car of finer quality and higher engineering standards than has ever before been offered at a comparable price.

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Five Passenger Touring Car
$1055

IN body design the new GRANT SIX commands attention by its pronounced individuality. Seen from the front or the side, it is a car of distinguished appearance. Its high and narrow radiator, high hood, sloping windshield, low cut body, wide doors and long running board, accentuate the length of the car and emphasize its grace and trimness.

The interior of the body is equally pleasing. Adjustable front seats, the decided rake of the seat backs, the new style French pleated upholstering, the double-decked spring cushions, the leather hand flaps on the door, are all evidences of the thoroughness with which the car has been worked out.

The new GRANT SIX is conspicuous among popularly priced cars for the care with which all body work, fenders, splashers, etc., have been handled. The painting is flawless. Everything about the car is workmanlike and a well finished job.

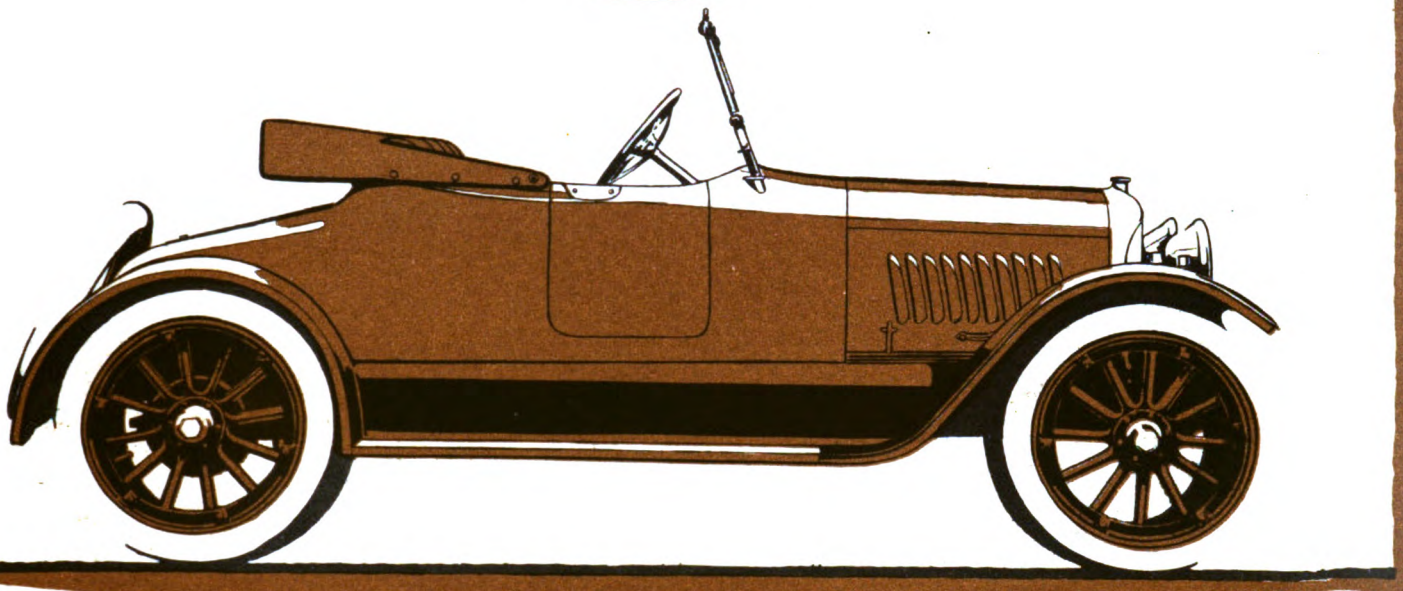
The present-day demand for economy is more than met in this new GRANT SIX. In consumption of gasoline, oil and tires we believe it to be the most economical six in existance, not merely under test conditions but in owners' hands and in every day use.

The GRANT SIX carburetion system is of the very latest type and besides economizing fuel, insures easy starting in coldest weather.

The almost perfect balance of the car, its light weight, and its splendid spring suspension (which permits the use of properly inflated tires) are factors which make possible the remarkable GRANT SIX mileage from standard tires.

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Three Passenger Roadster
$1055

SPECIFICATIONS

Six cylinder, overhead-valve engine, 3x4¼ inch bore and stroke, balanced crank shaft, forced-feed oiling system, three-ring pistons. Piston displacement 180.2 cubic inches, S. A. E. rating 21.6 h.p.

Improved Stromberg Carburetor with permanent hot air tube connected to hot air box integral with exhaust manifold.

Sparks-Withington Vacuum Gasoline Feed placed on dash, with 12½ gallon tank in rear.

Wagner Two-Unit Starting and Lighting System with excess capacity generator.

Bendix pinion, fly wheel starting gear, clutch and clutch throw-out, completely housed.

Remy Special Grant Ignition with improved timer. Willard Storage Battery.

Drop Forged Front Axle, Standard I-beam with extra strong steering connections.

Jacox Steering Gear. Split nut type. Throttle control and horn button on wheel. 18-inch Steering wheel.

Full Floating Rear Axle with 12-inch Equalized Brakes, Emergency Brake has long throw.

Long Semi-Elliptic Front Springs.

True Cantilever Rear Springs, 46 inches long, shackled at both ends and pivoted in center.

Extra Strong Frame—liberally reinforced.

Crown Fenders with splashers covering front springs and mud apron below radiator.

Radiator—reinforced double shell construction with removable core; mounted on trunnions.

Headlights carried on pressed steel brackets joined to fenders.

114-inch wheel base, 11 inches road clearance.

32x3½-inch Tires, non-skid in rear.

Firestone Demountable Rims.

One-Man-Top made of Neverleek Fabric. Liberal Top Curtains.

Divided Adjustable Front Seats. All upholstery of new flat French pleat type.

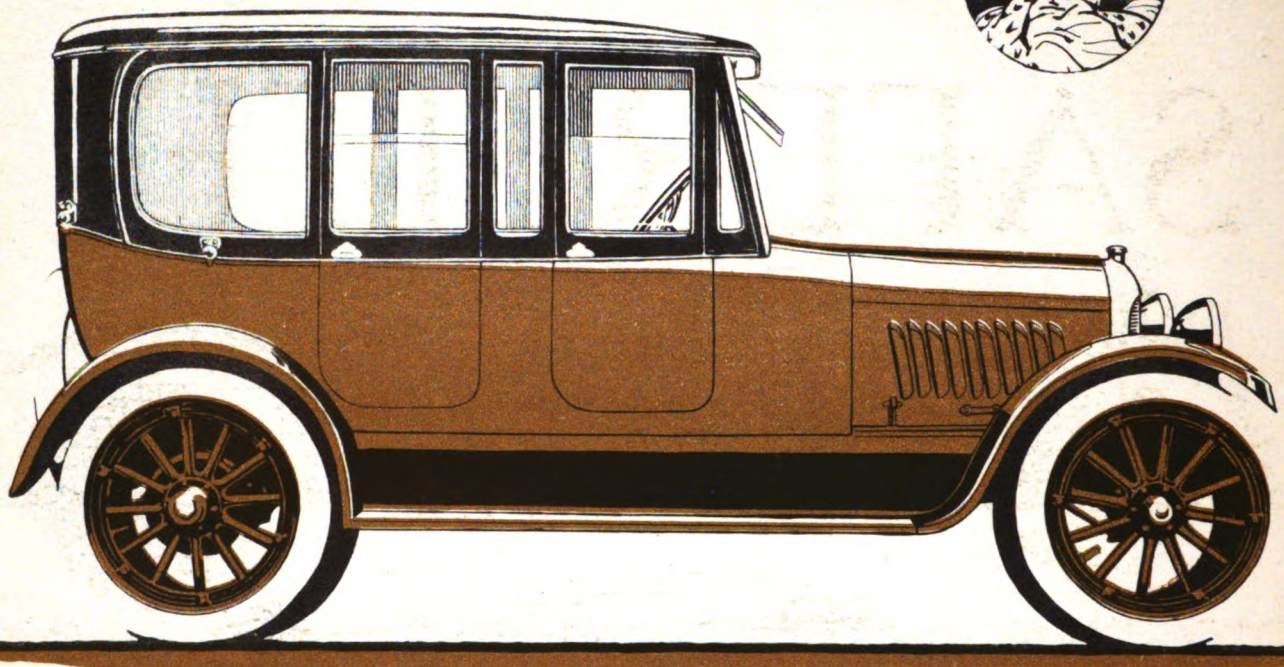
Deep olive green body with white striping on louvres and wheels. Black fenders. Leather hand flaps on doors.

Slanting windshield

Complete equipment.

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Five Passenger Demountable Sedan
$1350

THE FIVE GRANT SIX CARS

ON one standard chassis five different types are presented. Besides the touring car and roadster there are three splendid enclosed cars.

The Demountable Sedan is as fine a car of this type as has ever been built. It has all such up-to-date features as whipcord upholstery throughout, front integral with the sloping windshield, French plate glass, divided windows, etc.

The Convertible Sedan and Coupe are Springfield type and offer the most luxurious all-weather cars that have ever been offered at popular prices. They are trimmed throughout in fine gray whipcord and have adjustable front seats. The lines are truly beautiful and they are complete in appointments.

Five Passenger Touring Car } **Three Passenger Roadster** }	**$1055**
Five Passenger Demountable Sedan	**$1350**
Five Passenger Convertible Sedan	**$1595**
Three Passenger Convertible Coupe	**$1575**

All Prices f. o. b. Cleveland

See the new GRANT SIX at the NEW YORK and CHICAGO SHOWS. If you do not visit the shows, send for complete specifications and other literature

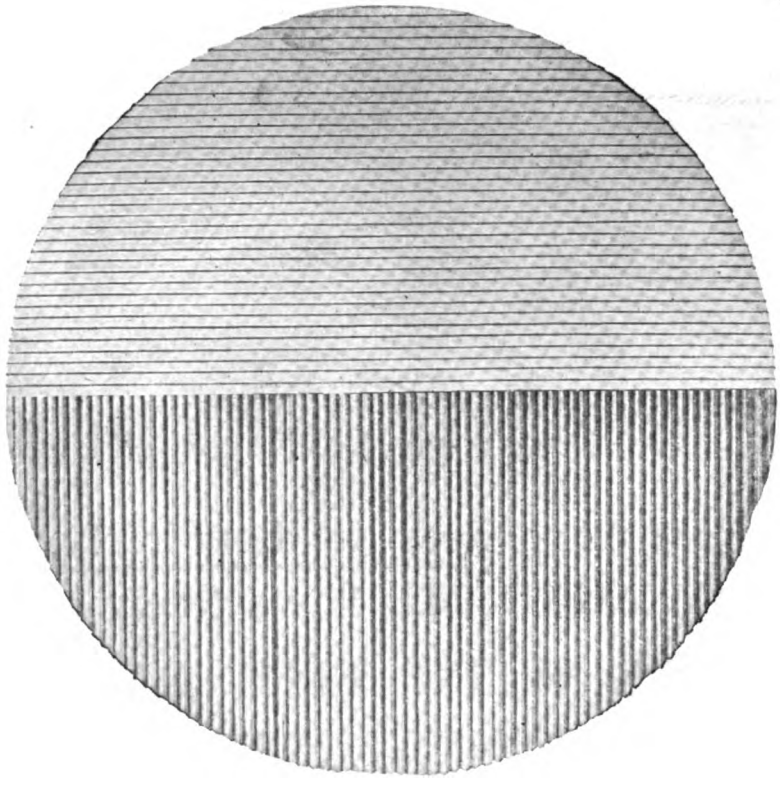
GRANT MOTOR CAR CORPORATION
CLEVELAND, OHIO

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SAFERLITE

Deflecting and Diffusing Head Lamp LENSES

The scientific method of road lighting



High projection over 400 feet ahead with the light kept below the horizontal and slight diffusion, so that you can see the full traffic width of the road,

And the price is not excessive.

PRICES

Up to 8⅛	$1.50	per pair
8¼ to 9	1.75	" "
9⅛ to 10	2.00	" "
OVER 10	2.25	" "

NOTE—A really worth while proposition for dealers: make inquiry.

Saferlite Lens Co.
220 Fifth Avenue
New York

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Blankets won't help much if—

the oil you are using does not flow freely at Zero.

SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

THIS is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "Flows freely at Zero" and leaves less carbon, owing to the fact that it is a Southern Asphalt-base oil containing no paraffine to gum, stick or thicken.

MANUFACTURED BY

GULF REFINING COMPANY

The Largest Independent Refining Company in the World

General Sales Offices: Pittsburgh, Pa.

District Sales Offices:
New York Philadelphia Boston Atlanta Tampa New Orleans Houston



There is MORE POWER in
THAT GOOD GULF GASOLINE
AND SUPREME AUTO OIL
MANUFACTURED BY
GULF REFINING COMPANY
PITTSBURGH, PA., U. S. A.

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Write for Complete Catalog THE MILWAUKEE FULTON LINE *of the FULTON Line*

AMERICAN BUMPERS

"The Complete Line"

We now are ready to render COMPLETE BUMPER SERVICE. A modern factory and an ample supply of raw materials assure DEPENDABLE DELIVERIES.

Bumpers, both front and rear, for all cars. Distinctive and practical designs, backed by a four-year experience in bumper making.

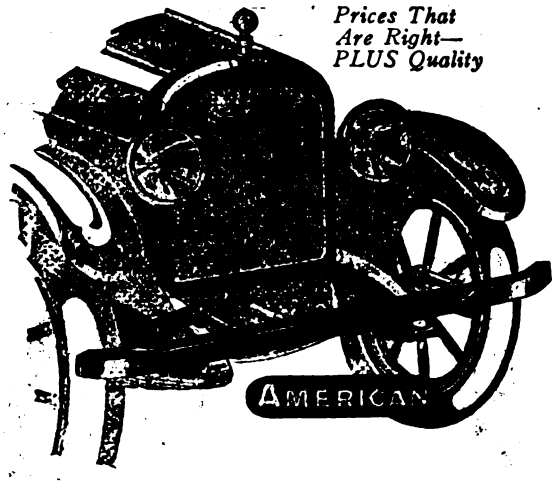
Best grade of malleable iron and cold rolled bar stock; each part machined and hand polished; nickeling guaranteed for one year of actual service.

Special BUMPER SERVICE DEPARTMENT to help you.

Jobbers and Dealers will do well to investigate our 1918 line.

Made by the American Metal Parts Co. Milwaukee Wisconsin

Prices That Are Right— PLUS Quality





"Eklips"

Spark Plugs

A specially well-built line of Spark Plugs. On the market for years, establishing a record of SERVICE and SATISFACTION.

Soot-proof, leak-proof and oil-proof features.

Good profit and a quick seller for dealers.

Made in different styles, sizes and threads to fit all cars.



Fulton Mud Hooks

The most practical device of its kind on the market. Strap one to each rear wheel. Act with a steady lift which does not strip the differential gears. Save their cost over and over. Thousands in use. Malleable iron with strong web straps. Light and occupy small space in tool box. A big seller.

The ARMORE Exhaust Horn

"The Signal with a Smile"

Built on the pipe-organ principle. Gives a signal that is pleasing to the ear and does not frighten. Yet it is effective for long or short distances. *Requires no upkeep.* First cost is the only cost. Cannot clog. Has no wires or batteries. No movable parts to wear out. Easy to install and lasts as long as the car.



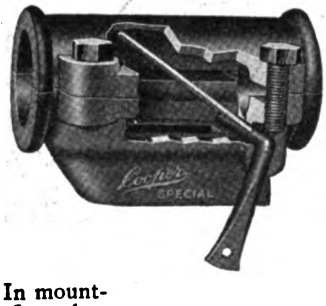
Made by The Fulton Company, Milwaukee, Wisconsin

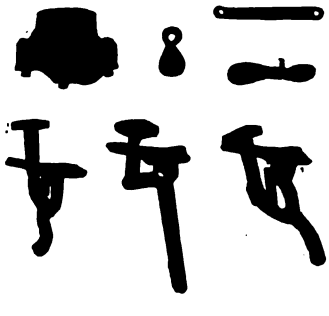
Cooper

Cooper "Special" Cut-out

Attaches over section in exhaust pipe. *You need not cut the pipe in two. About one-half of the pipe is left for support.* Not a heavy cut-out but light in weight. Flapper fits the pipe and diverts the exhaust to the opening, which is shaped to give easy exit.

Made in sizes from 1½ to 2½ inches to fit all cars.





Cooper Cut-out Outfits

High-grade materials, accurately machined. Air-tight. In mounting cut V opening in pipe large enough to clear butterfly valve. Valve and pedal finished in special hard-baked enamel that will not chip or peel.

Cooper Wheel Puller for FORD CARS

High-grade malleable iron. Light and small, but very strong. Lever or set screw. Adjustable feature on side insures tight fit on wheel hub and prevents stripping of threads. A very superior article in construction and operation.

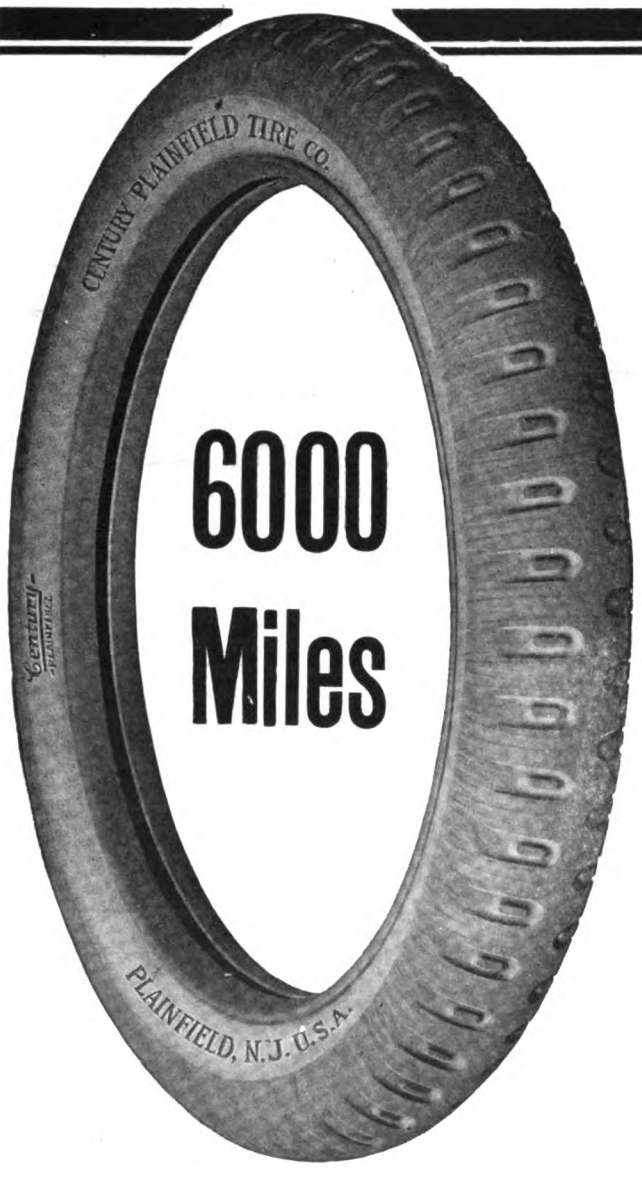


Made by the Cooper Mfg. Co., Marshalltown, Iowa

THE FULTON COMPANY, Milwaukee, Wis.

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The Tire That Goes Out and Gets Business



Every time you sell a Century-Plainfield Tire you're sending out a salesman.

The man who bought comes back—certainly—he's a booster, but better yet—his friends come, too.

Century-Plainfield popularity is founded on performance. They have an inbuilt capacity to negotiate extra miles. Under all conditions they give the very limit of wear.

"Quality First"—that's the Century-Plainfield slogan and on that formula they're built.

The very finest quality of materials in the world go into their makeup and these are combined and fashioned into shape by time-seasoned experts.

No whit of anything that would make for better tires has been neglected.

Century-Plainfield agencies may be secured by high class dealers—and with the privilege of handling this great line will go the complete co-operation of the Century-Plainfield organization and an opportunity for generous and continued profits.

CENTURY-PLAINFIELD TIRES

CENTURY-PLAINFIELD TIRE CO.,

Century-Plainfield Tire Company, a subsidiary of the Rubber Insulated Metals Corporation, Exclusive manufacturers of the RIMCO Rubber Products by the EL-CHEMCO process.

Plainfield - - - - - - - - - New Jersey

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Make Your Ford "Ride Like a Young Packard"

"WE find them eminently satisfactory, making a Ford ride like a young Packard." Those are the words of one enthusiastic user of Aitchandee Shock Absorbers. Another says, "If every Ford owner would try your Absorbers for fifty miles over rough roads, I venture to say you would be unable to fill your orders."

"Save tires, and enough wear and tear on the car to pay for themselves in the first three or four months," says an Aitchandee owner in Brooklyn, New York. A Tennessee man says, "My Ford rides like a car with a long wheelbase, equipped with your Shock Absorbers."

Over 150,000 Ford owners are enjoying the advantages of the Aitchandee.

How about you?

Can you afford to suffer the discomfort, to wear out tires, to weaken your Ford, when Aitchandee Shock Absorbers would, at small cost, immediately change the entire situation?

AITCHANDEE

"TRADE-MARK REGISTERED"

Shock Absorbers

On the Ambulances in France

Back of the lines, where roads are broken up by shell holes, Aitchandee Shock Absorbers on the ambulances are protecting wounded soldiers against the jolts and jars. Aitchandee Shock Absorbers never would have been used unless their merit had been proved beyond question.

Why don't *you* take advantage of Aitchandee comfort?

The cantilever principle, first developed in Aitchandees, gives a different tension on the upward and downward thrust.

This Aitchandee cantilever eliminates a sharp rebound. The Aitchandee cantilever carries the body forward on practically a straight line while the wheels follow the contour of the road.

That is why the Aitchandee Shock Absorbers make a Ford ride like a long wheelbase — Pierce-Arrow, Locomobile and Packard.

Make *your* Ford ride like a car with a wheelbase of 140 or 150 inches.

Ask for the facts today. Read below.



"Iron" the Roads for Fords

When you put Aitchandees on your car, you've made it over as far as comfort is concerned. Just a few hundred yards driving anywhere will convince you. Whether you test Aitchandees on rough roads or city pavement, *you'll notice the difference.*

Why don't you put Aitchandee Shock Absorbers on your car? The expense is practically nothing when you consider the results in comfort, tire saving, and protection to the mechanism of the car.

Remember that Aitchandee Shock Absorbers have tremendous endurance. The springs are made of the best spring wire steel. Specially annealed malleable iron affords practically unbreakable arms. Lock bolt construction makes oiling unnecessary. Aitchandees are easily applied. No holes to bore. Appearance of car is not marred. Aitchandees once on are scarcely visible.

Hundreds of Miles More From Every Tire

Vibration and shocks are so perfectly absorbed by Aitchandees that the tires have less strain and consequently last longer. Aitchandees will quickly save their cost in tire protection alone.

And tires are a bigger item than ever before in the operation cost of your Ford.

Make Your Ford Last Longer

through the cushioning effect of Aitchandees.

Road gulleys and ruts destroy the finest steel. Motor, bearings, transmission, all suffer.

But Aitchandees reduce these hammer blows so that the Ford stands up better. Fewer breakdowns, lowered repair cost, longer life. 150,000 other Ford owners know this to be true. You must equip with Aitchandee Shock Absorbers if you really want to get the longest service from your Ford.

WRITE—We'll Put Big Car Comfort Into Your Ford—Get Facts—No Obligation

Find out at once what Aitchandee Shock Absorbers will do for you. A postal will bring you the facts. We'll prove to you Aitchandee results *conclusively.* If we don't you're under no obligation in any way.

We'll tell you where you can inspect Aitchandee Shock Absorbers and see for yourself how they operate and why they give greater comfort, economy and long life to your Ford. Write us at once.

The H. & D. Co., Inc., Goodland, Indiana

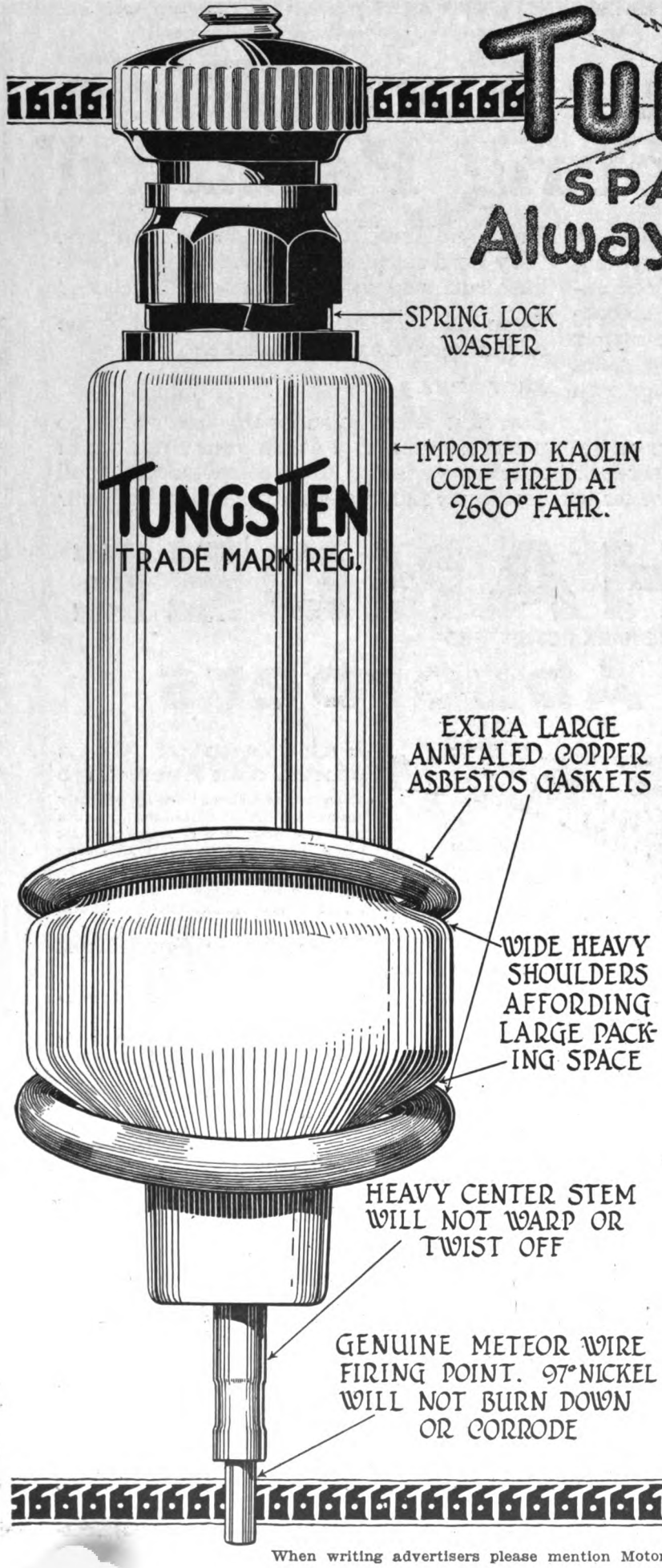
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TUNGSTEN

TRADE MARK REGISTERED

SPARK PLUG

Always on the job



Tungsten success is not due to secret processes, but to the combination of finest known materials and parts made extra heavy where the strain is greatest.

Porcelain breakage and compression leakage are practically eliminated by the unusually large annealed copper asbestos gaskets on both the upper and lower shoulder. Poor packing allows insufficient play between the metal parts (which expand and contract with the changing temperatures), causing excessive porcelain breakage, the greatest fault with so many spark plugs.

TUNGSTEN MFG. CO.

Marshalltown Iowa

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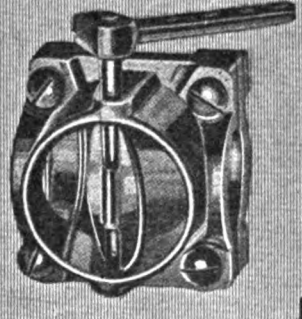
"Ampeco" products



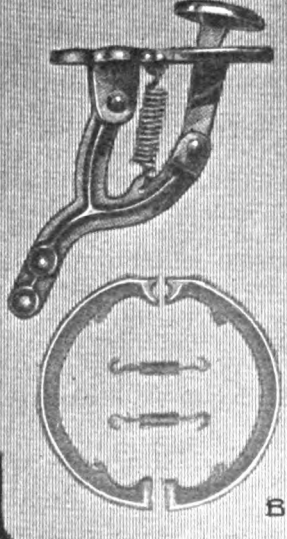
AMPECO PISTONS



WHEEL PULLER



MUFFLER CUT-OUT



BRAKE SHOES

DEALERS ARE MAKING BIG PROFITS

with

"Ampeco" Pistons for Fords

Business on AMPECO Pistons is bigger this winter than ever before. For economy, a smoother running Ford, with greater power and increased speed, without main bearing troubles, they have no equal. *The trade knows this—and buys.*

"Ampeco" Cut-Outs

Commercial and passenger Ford cars from coast to coast are rapidly being equipped by their owners with AMPECO Cut-Outs. Simple to install. Increase the possible power of any Ford car. Complete with pedal, pulley and 2 feet of cable. *A necessity for Fords that sells.*

Write today for complete information concerning the entire AMPECO Line. Every AMPECO Product is mechanically perfect. AMPECO Pistons make Fords run like multiple-cylinder cars. *Sales grow bigger every day.*

AMERICAN MACHINE PRODUCTS COMPANY
Marshalltown Iowa
Fulton Sales Co., Exclusive Sales Representatives
910 S. Michigan Blvd., Chicago, Illinois

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Bill posting will play an important part in putting Conaphore before the public in 1918.



These leading Magazines will carry the story of the Conaphore all through next year.

The Conaphore

Smooth front surface. Easily cleaned. Does not clog with dust, mud or snow.

These farm journals will give rural car owners the complete story of the Conaphore in 1918.

1918 Advertising Announcement

Conaphore campaign strongest ever put behind an automobile headlight glass

Our 1918 advertising will make Conaphore the best known headlight glass on the market—not only to city, but to rural car owners as well.

We are using two-color, full page advertisements once a month in the Saturday Evening Post. We are using full page ads in Collier's Weekly, Literary Digest, Leslie's Weekly, and Scientific American; also large space advertising in McClure's and the American Magazine.

Big farm paper campaign

We are reaching the rural car owner by an extensive campaign in national and state farm papers. And of course we are advertising heavily in the leading motor publications. The combined circulation of this list totals more than 7,000,000.

The surface of the headlight glass market has hardly been skimmed. Our 1918 advertising campaign is bound to open new and wide fields for profitable business. It will dominate the headlight glass market in every section of the United States and Canada. It will create sales for Conaphore dealers throughout the entire year.

Consider the merits of the Conaphore. Note the advertising backing we are giving this remarkable headlight glass. Then decide whether or not you want some of this profitable 1918 business.

Investigate the Conaphore at the New York Show

Space D-106 will be Conaphore headquarters at the New York Automobile Show, Jan. 5-12, at Grand Central Palace.

Call on us and we will demonstrate exactly why the Conaphore is the most efficient automobile headlight glass.

We will also show you in terms you can't mistake just why the Conaphore is a paying proposition for you to handle in 1918.

Manufactured by the world's largest makers of technical glass

CONAPHORE

Range 500 feet—No glare—Pierces fog and dust

Notice to jobbers

If you are among the few who are not handling Conaphores, get in touch with us at once. The Conaphore proposition is sure to interest you. Write us to-day.

Notice to dealers

Our sales records show a brisk winter demand for Conaphores right now. Secure your share of Conaphore profits. We furnish every co-operation—sales leaflets, display charts, and advertising electros. To insure prompt delivery, get your orders on your jobber's books as quickly as possible.

For special information write to your jobber or direct to us.

CONAPHORE SALES DIVISION
Edward A. Cassidy Co., Inc., Managers
Madison Ave. and 40th St., N. Y. C.

CORNING GLASS WORKS

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BRUNNER

The Brunner Garage Air Compressor

WILL BE EXHIBITED AT BOTH THE

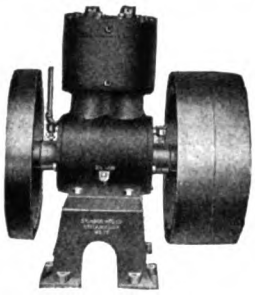
NEW YORK AND CHICAGO AUTOMOBILE SHOWS

MAKE A NOTE OF THE SPACE NUMBERS



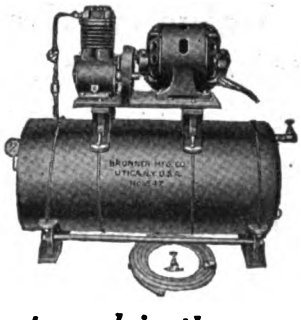


INVESTIGATE THE BRUNNER AIR COMPRESSOR



Every Motorist, Garageman and Jobber attending the New York and Chicago Automobile Shows will find it to his interest to visit the Brunner exhibit and should not fail to grasp the opportunity to become better acquainted with the use of compressed air for tire service.

The motorist interested in the proper care of his tires will find our engineers anxious to give him advice regarding the proper use of compressed air for tire service. The Garageman, whether he is a user of Brunner Equipment or not, will find our engineers ready and willing to assist him in solving his compressed air problems.



The Jobber will find our Sales representatives ready to explain the Brunner Sales Plan for 1918. We extend you a cordial invitation.



BRUNNER MANUFACTURING CO.

Main Office and Plant:
UTICA, N. Y.

Cincinnati Branch:
419 First Nat'l Bank Building CINCINNATI, OHIO



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Another Great

This car will be exhibited at the New York Show — Space C-11, 3rd floor, Grand Central Palace.



This car will be exhibited at the Chicago Show—Space G24 to 49 in the Greer Building.

By World's Champion Light Six

6,202 Miles With SEALED Hood, Clutch and Transmission

CHICAGO to the Pacific Coast and back—no CHANCE to touch the engine—no chance to even LOOK at clutch or transmission—that is the latest wonderful record of the ELGIN SIX.

The Valve-in-head Motor never faltering on the steepest inclines, in the deepest mud nor the heaviest sands—

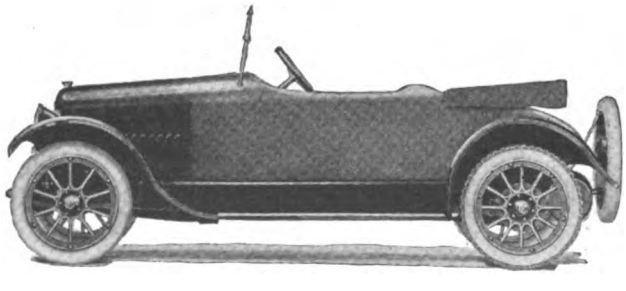
The CLUTCH holding on mile after mile of steepest mountain climbs—

The BRAKES holding fast on mile after mile of downward plunges—where slipping meant death—

What eloquent proof of the 100% *stamina* and *dependability* of this strictly stock ELGIN SIX.

And Economy—19.4 miles to the gallon of gasoline.

Elgin Six



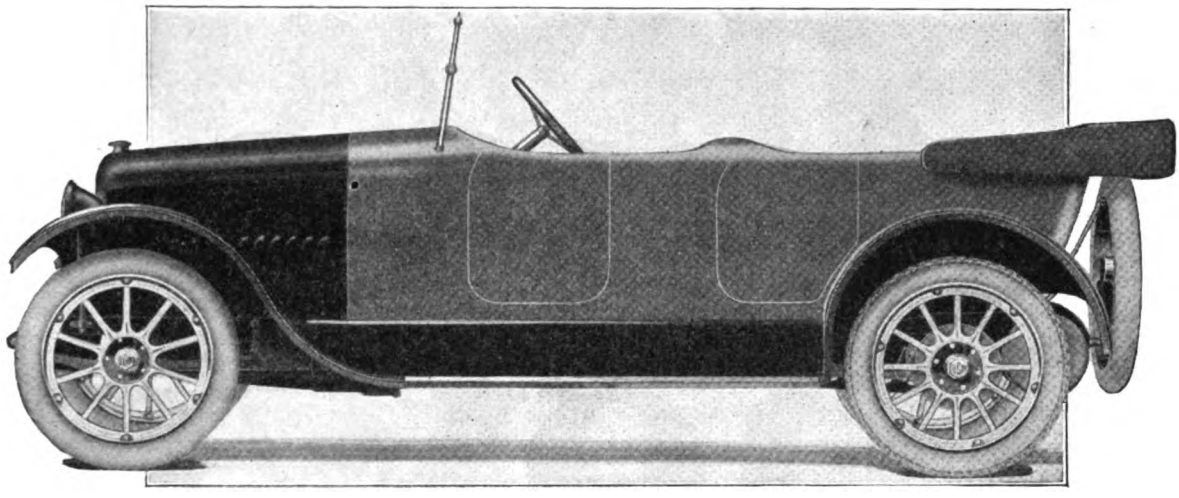
Elgin Six 4-Passenger Roadster, $1095

F. O. B. Chicago

A car for business and professional use, as well as for all-'round driving. Roomy enough for four people, yet not too large for one or two. Front seats divided. Beautiful yacht-line design. A popular, practical model. Same chassis as touring car, with 117-in. wheelbase, valve-in-head motor, etc.

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Victory Scored



Elgin Six 5-Passenger Touring Car, $1095 F. O. B. Chicago

A roomy, impressive car. 117-inch wheelbase. Valve-in-head motor. Quality upholstery and finish throughout. Flexible, powerful, smooth running and easy riding. The most economical car of its size. Beautiful, durable. A family car which old and young alike enjoy.

ENGINE, clutch and transmission performed *without adjustment—without repair*—for two solid months of continuous travel under the roughest usage.

The Elgin climbed and descended the precipitous slopes of the Rocky Mountains; threading its way along tortuous, rock-strewn mountain trails; plunging through unbridged streams.

Without a break the car ran perfectly in the freezing, rarefied atmosphere above the clouds; and cooled perfectly in 132 degrees of desert heat, where heavy pulling increased the difficulty of *keeping* a motor cool.

A broken fan-belt—compelling the car to travel a thousand miles homeward *with a still fan*—a performance almost unbelievable—added a crucial test.

The record-breaking run from Chicago to Miami, Fla., the Minneapolis-Fargo dash, and many other famous ELGIN winnings had fairly earned for the ELGIN the title of "World's Champion Light Six."

Hence, when the officials of the Chicago Motor Club determined to secure authentic data on the condition of the two great national highways—The Lincoln Highway and The National Old Trails Highway—they selected the ELGIN SIX because of its previous wonderful records. It was made the "Official Scout Car," traveling under the auspices of the Chicago Motor Club, the American Automobile Association, the Detroit Automobile Club, and many other Associations affiliated in the Good Roads Movement of America.

In the Service of the U. S. War Department

But the greatest honor was conferred upon the ELGIN SIX when Secretary of War Newton D. Baker, in a personal letter, appointed it Official Scout Car to report transcontinental road conditions to the War Department—to gather information that may prove most valuable to the War Department in emergency movements of troops and supplies.

It was a commission of honor for the ELGIN. No car had ever been sent on an errand so important to this Government. No car had ever been charged with a service so distinguished.

Successful dealers are fast coming to the Elgin Six.
A highly profitable connection may be awaiting YOU.
Wire for territory and full details.

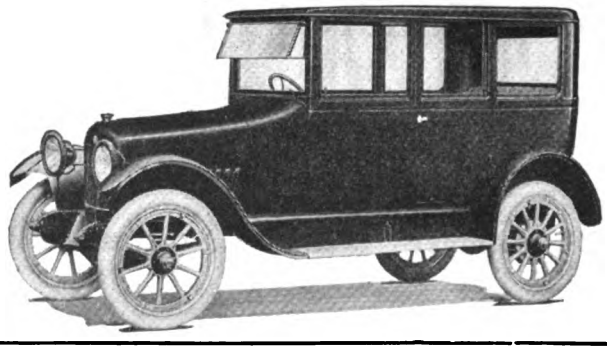
Address Dept. 16D

Elgin Motor Car Corporation, Chicago, U. S. A.

Elgin Six Sedan, $1645

F. O. B. Chicago

A richly finished, luxuriously upholstered car that meets the all-season, all-weather requirements. Interior of best Bedford Cord. Plate glass windows. Silk curtained rear and rear quarter windows. Patented, adjustable steering wheel. Heavy Brussels carpeting for the floor. Electric dome light for interior.



Elgin Six

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The National Auto Shows

Under Auspices of National Automobile Chamber of Commerce, Inc.

January 5–12
at NEW YORK

Jan. 26–Feb. 2
at CHICAGO

Four Hundred Exhibits of Cars and Accessories

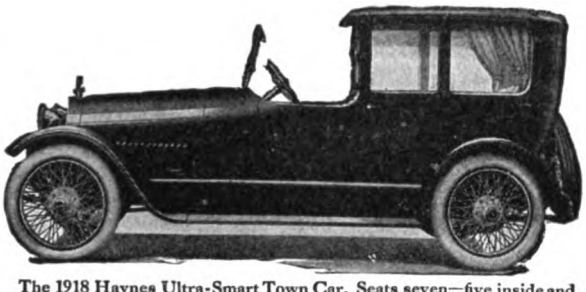
S. A. MILES, Manager **7 East 42nd Street, New York City**

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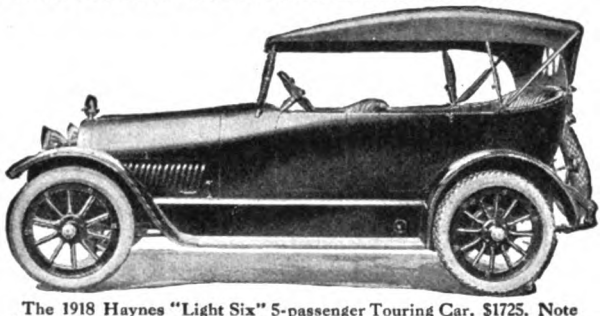
The 25th Successful Year
of

HAYNES

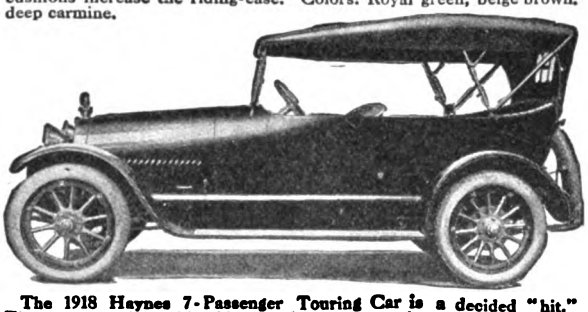
"America's First Car"



The 1918 Haynes Ultra-Smart Town Car. Seats seven—five inside and two in the driver's compartment. The plate glass windows may be lowered by means of convenient lifts. Perfection heater. All the luxuries. Colors: Royal green, beige brown, deep carmine, Haynes blue.



The 1918 Haynes "Light Six" 5-passenger Touring Car. $1725. Note the broad-chested, high-arched hood, the straight lines, the curve to the fenders, the double cowl, the rakishly tilted windshield. Plenty of room and "then some" for five. Deep springs in the comfortably shaped cushions increase the riding-ease. Colors: Royal green, beige brown, deep carmine.



The 1918 Haynes 7-Passenger Touring Car is a decided "hit." The center cowl panel is of beautiful American walnut. Auxiliary seats fold into it. A convenient package compartment is at the center. The upholstery is deeply cushioned and French pleated. All the "little details" are correct. Colors: Deep carmine, royal green, beige brown.



"The Prettiest Roadster in America" is the Haynes 1918 Roadster for Four—The "FOURDORE." The lines speak for themselves. Built upon the 127-inch 7-passenger chassis, ample leg-room is provided both in rear and front for "six-footers." Carrying compartment in rear. *Four doors.* A stunner! Colors: Beige brown, deep carmine, royal green.

DEALERS:

THE mature Haynes motor, America's Greatest Light Six Engine, now in its 42nd month of success, virtually without change, is continued. Over a quarter billion miles of driving by more than 20,000 average owners, have proved it the best "six" in its class for performance, durability and *low upkeep.*

The chassis now has six-inch side members. 39 x 2¼ inch front springs and 58 x 2¼ inch rear springs assure maximum easy-riding by reason of their generous size and resiliency.

There are six beautiful new bodies in a range of colors for 1918. Note the high, broad-chested hoods, tilting windshields, double cowls, etc.

Haynes, "America's Greatest Light Twelve," winner of fast racing events this past season, is also offered in five new bodies of striking appearance. Wire wheels and cord tires are regular equipment.

Haynes national advertising—pages both in colors and black and white—in leading weeklies and monthlies, and dominating space in a long list of the best farm papers, pages in motoring publications, etc., is exerting a greater selling force in behalf of the dealer than ever before in Haynes annals.

Haynes co-operation with the dealer in his local publicity is likewise intelligent, willing and liberal.

A beautiful automobile catalog portrays these latest Haynes offerings in full. Proudly will these be handed to prospects by Haynes dealers this year.

Send for a copy—and for the full *"Haynes 1918 Proposition to Live Dealers."*

THE HAYNES AUTOMOBILE COMPANY
70 So. Main St., Kokomo, Ind., U. S. A.

HAYNES 1918 PRICES

	"Light Six"	"Light Twelve"		"Light Six"	"Light Twelve"
Sedan	$2585	$3385	5-pas. Touring	$1725	
Town Car	3250	3985	7-pas. "	1825	$2785
Coupe	2535	3335	"Fourdore"	1825	2785

Regular equipment: Wood wheels, fabric tires, on "Light Sixes." Wire wheels, cord tires, on "Light Twelves." Demountable tops for open models, $300.

Above prices f. o. b. Kokomo. Add $44 to all models to cover war tax. Colors, other than regular, extra.

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See the New Kissel Sales Features

NEVER before has a line of automobiles been so replete with exclusive sales-creating features. At the New York Show, Grand Central Palace, Jan. 5th to 12th, will be shown the highest stage of development and salability of the ALL-YEAR Car.

The New Hundred Point Six

5-Passenger

Staggered-Door Sedan

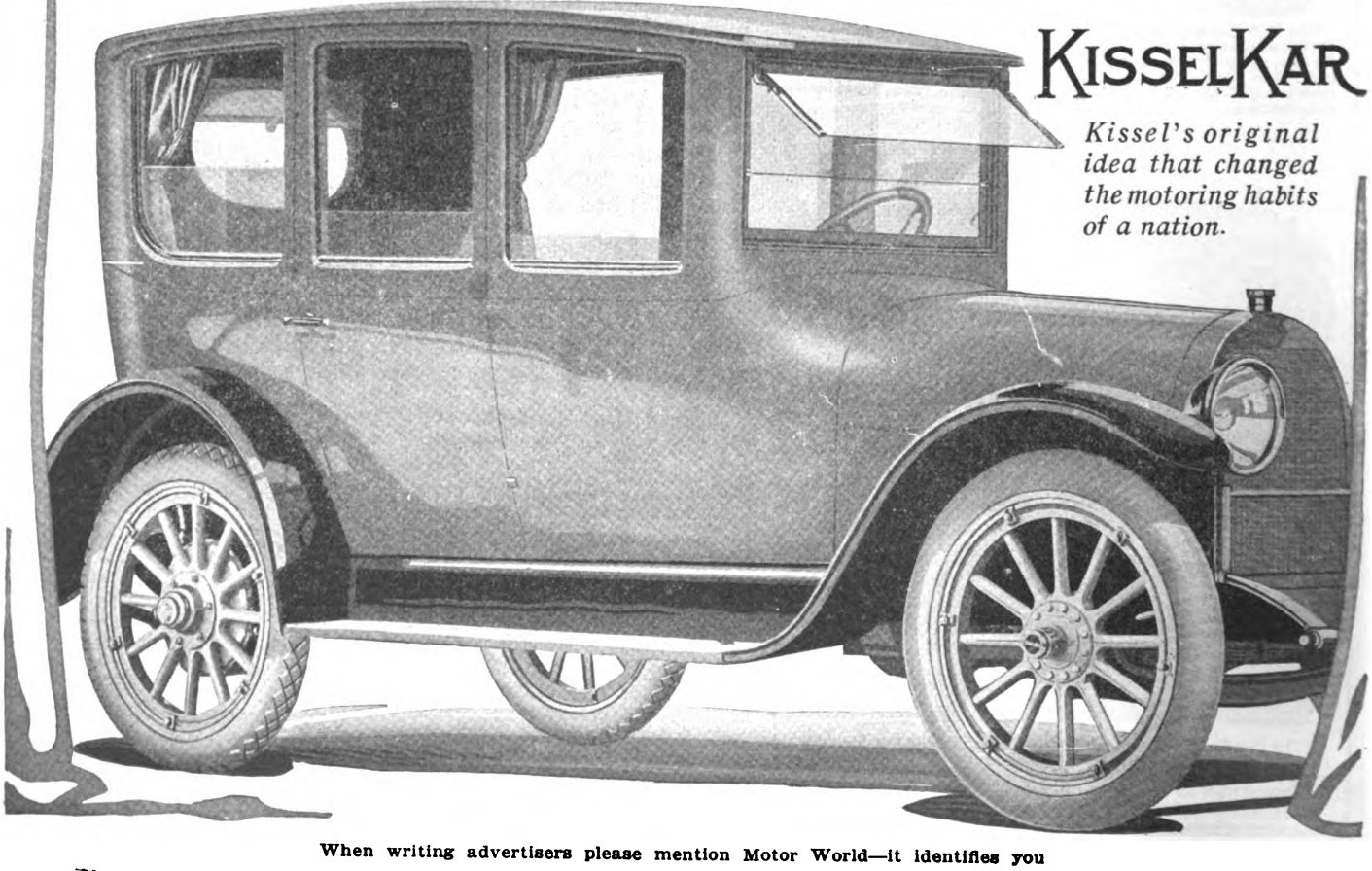
The ALL-YEAR Top is entirely removable, or all windows may be lowered or raised, a feature that will appeal to your most discriminating people. Mounted on the HUNDRED POINT SIX—the Car of a Hundred Quality Features.

Factory officials will be on hand to show you the unusual all-year profit producing possibilities of the Kissel line in your territory. Write us for appointment at the Show or the Kissel headquarters at the Waldorf-Astoria Hotel.

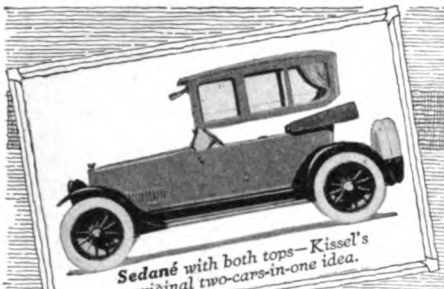
Kissel Motor Car Company, Hartford, Wis., U. S. A.

KISSELKAR

Kissel's original idea that changed the motoring habits of a nation.



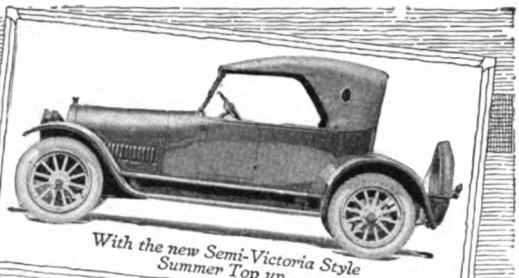
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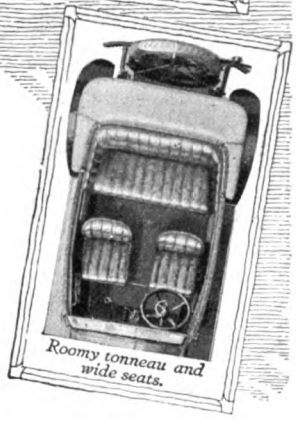
Sedané with both tops—Kissel's original two-cars-in-one idea.



Perfect blending of ALL-YEAR Top and body, no visible attachments, no rattles.



With the new Semi-Victoria Style Summer Top up.



Roomy tonneau and wide seats.

at the New York Auto Show—

FIRST appearance of Kissel's 1918 model of striking originality and value that will set an absolutely new standard in the motor car industry. Its sales-creating features will prove decidedly unique to those dealers who are looking for a profitable 1918 line.

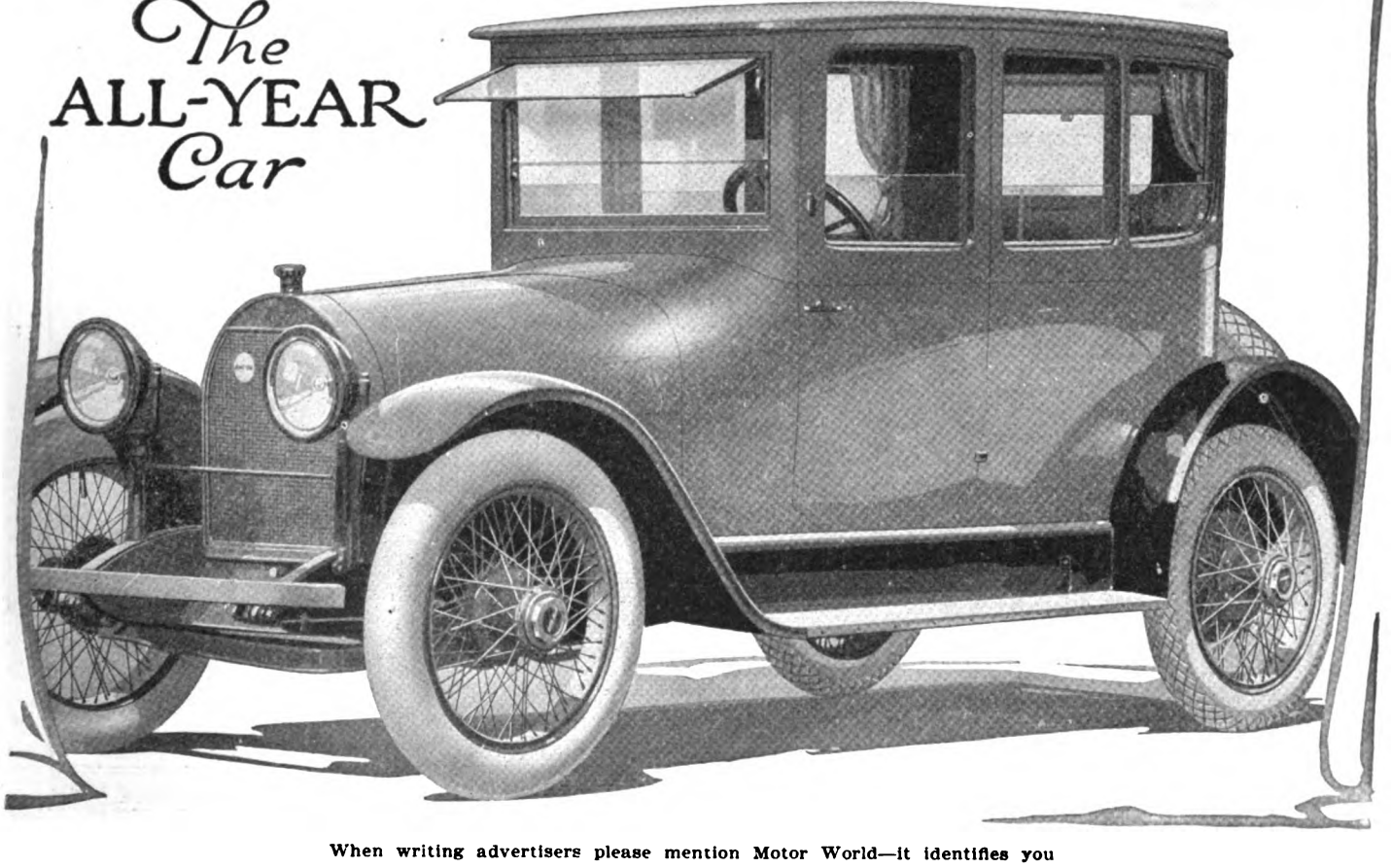
The New Hundred Point Six

4-Passenger Sedané

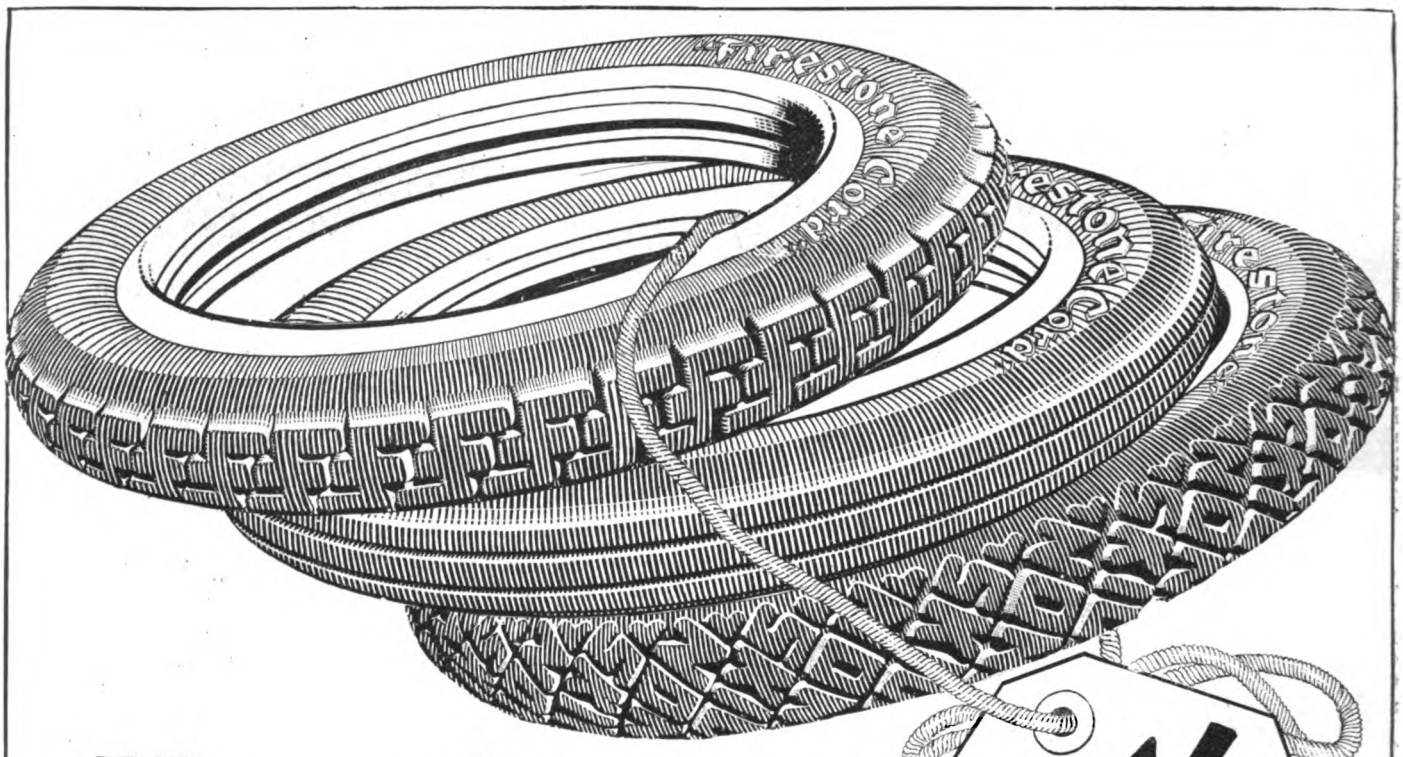
Inspect its unusually roomy tonneau and you will see why your customer will insist on this model—a new Kissel triumph possessing exclusive sales features. Examine the new ALL-YEAR Top that is entirely removable, or in which all windows may be lowered or raised.

Kissel Motor Car Company, Hartford, Wis., U. S. A.

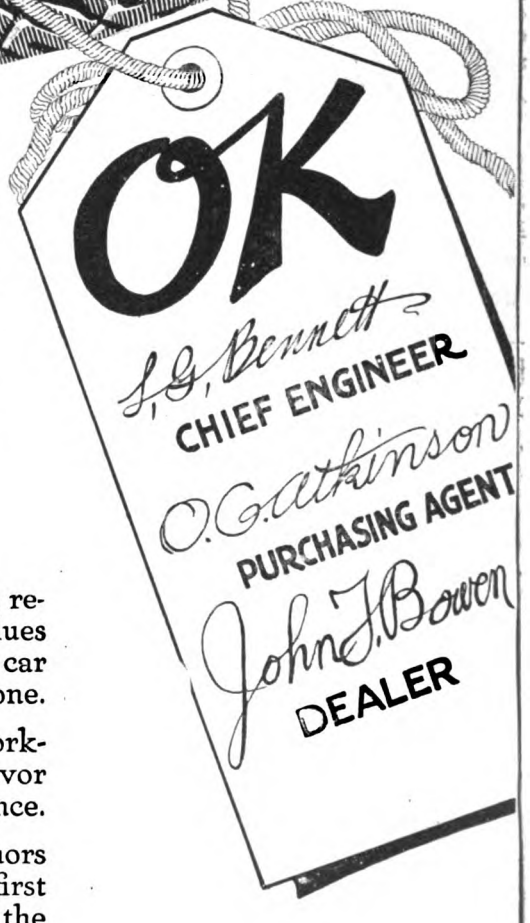
The ALL-YEAR Car



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Unanimous Approval by Engineer—Purchasing Agent—Dealer



FIRESTONE TIRES stand well with men who are responsible for pleasing the public. Their measure of values is the stern question, "Will it make good with the car owner?" They recognize the influence of the name Firestone.

They know the character of Firestone materials and workmanship. They have felt the sweep of public opinion in favor of Firestone. That is the final proof of Firestone performance.

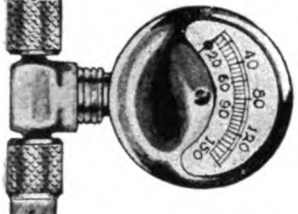
FirestoneTires, both cord and fabric, well deserve the honors they have won. As factory equipment on cars of the first rating, they have shown not only good selling value at the start, but "staying" qualities at the finish. They are an added inducement on any car, whatever the price class.

Firestone Tires merit the investigation of every man connected with tire purchase for car manufacturers.

FIRESTONE TIRE AND RUBBER COMPANY
Akron, Ohio Branches and Dealers Everywhere

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Announcing The HILTON VALVELESS PUMP



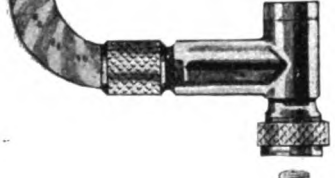
The Hilton Pump is absolutely leak-proof. The expanding piston head supplemented by two auxiliary piston rings forms a seal that defies any leakage of oil or air.

The Hilton Pump has only sixteen parts. Other pumps have from thirty-five to fifty. Consequently the simplicity of this pump assures far less need of repairs and wear than other pumps can guarantee.

The Hilton Pump cannot be flooded with oil. It is lubricated by felt washers, which absorb only sufficient oil for perfect lubrication. Any surplus flows through to the ground, a feature impossible with splash systems.

The Hilton Pump does its work quicker than other pumps. Absolutely leak-proof, it accomplishes at less revolutions per minute the same results that other pumps obtain at greater speed. This, together with the long, thin fins which actually cool the pump, eliminates super-heating the hose and consequent deterioration.

The Hilton Pump outlives other pumps. An automatic check is attached to the end of the hose and screwed to the top of the pump. The dirt and grit which usually get into the valves of an ordinary tire pump and cause such trouble are thus carefully guarded against.



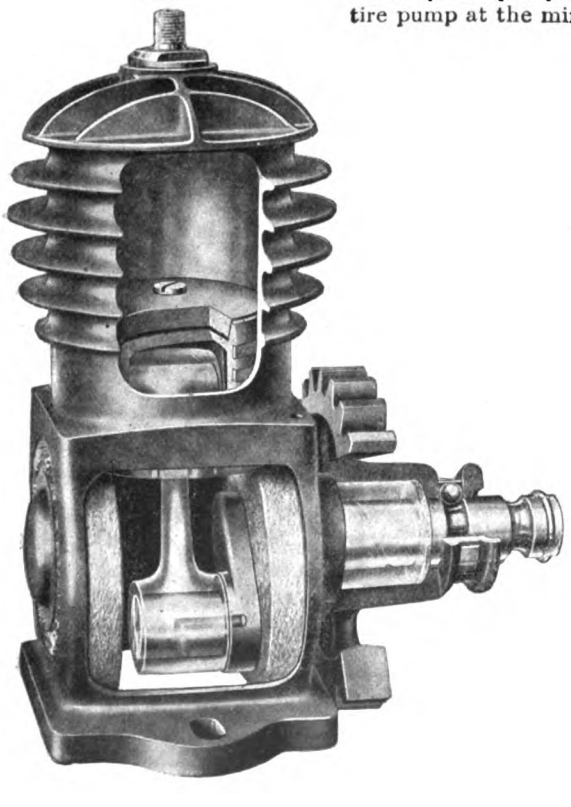
The Hilton Pump is the pump for your car. Made for all makes of cars, it is simple, easy to install, doubly efficient and overcomes every fault inherent in the ordinary tire pump. It offers you the best tire pump at the minimum price.

DEALERS

This is the biggest opportunity that has come your way for a long time.

The Hilton Pump will be sold in your territory.

Prove to us that you are the man to sell it and we'll make you a most liberal proposition.





$15

THE HILTON UNIVERSAL AIR PUMP COMPANY

Keene N. H.

Hilton VALVELESS Pump

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Saxon Sales Bulletin

No. 1 *Issued Monthly by the* SAXON Strength Economy Service *Saxon Motor Car Corp., Detroit*

He Who Sells Saxons Is in a Good Business

The record of the Saxon name is a high record.

The car and the company have earned the respect of the automobile industry, of the great public of automobile dealers, and of the still greater public of automobile buyers.

Never have they merited that respect more than at the present moment.

Consistent growth has bulwarked the strength of the company.

Consistent advancement has given to the Saxon car greater value.

And these have gained from the buying public greater favor for the name Saxon.

So that the dealer who acquires the right to sell Saxons enters into a fortunate field of business.

It is interesting to run through the long list of Saxon dealers.

You will find name after name of men known thruout the dealer public as prominent dealers.

Practically without exception the Saxon dealer in each community is one of the two or three ablest and strongest dealers.

This is the most convincing evidence as to how the business of selling Saxons is regarded by the good automobile dealers of this country.

As is natural in the case of a growing company, it has come about that there are several desirable territories open to the right men.

Should you feel yourself fitted to become a member of the Saxon dealer organization, your request for information will be carefully considered.

When writing advertisers please mention Motor World—it identifies you

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U.S. Trucks

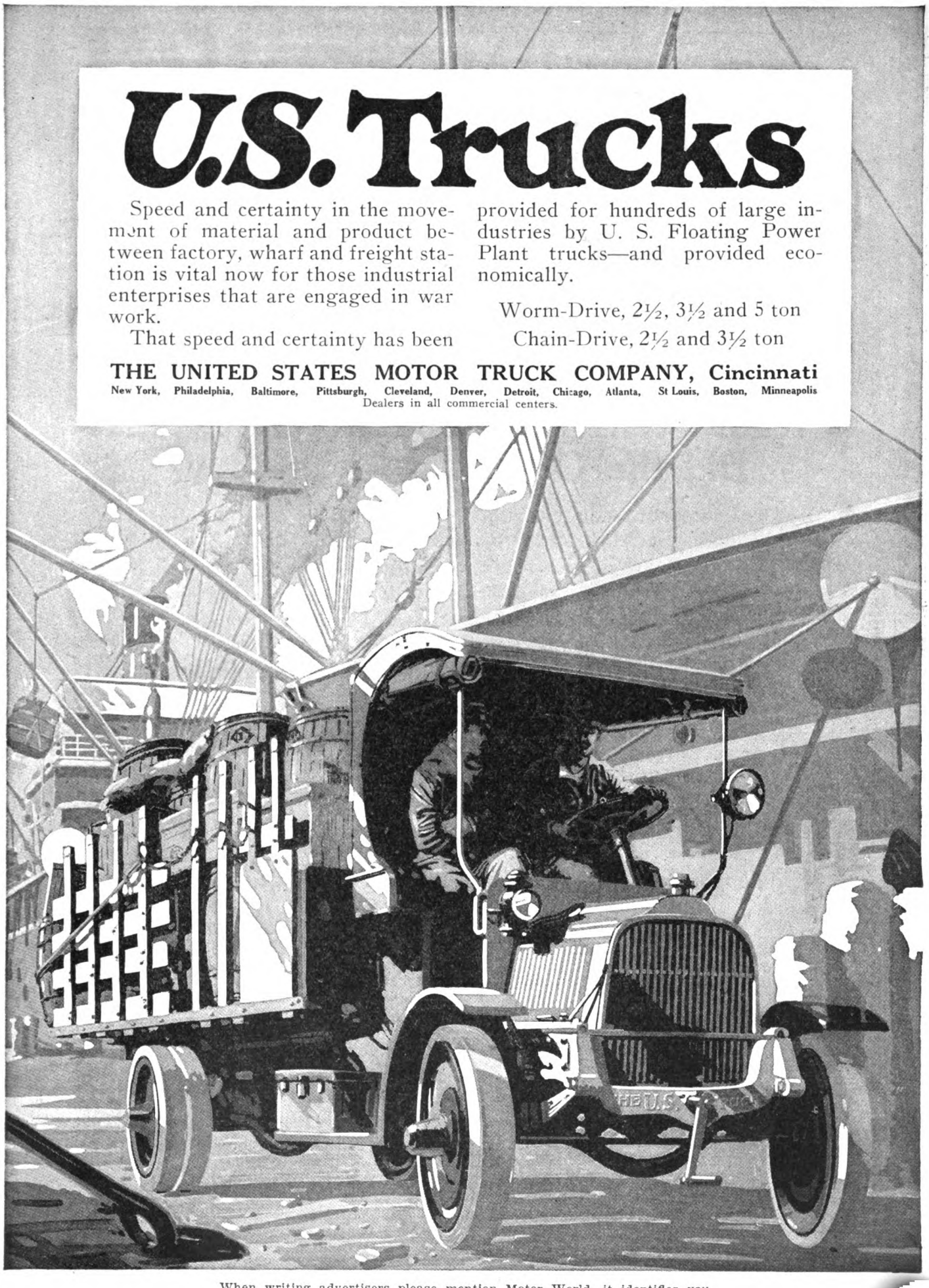
Speed and certainty in the movement of material and product between factory, wharf and freight station is vital now for those industrial enterprises that are engaged in war work.

That speed and certainty has been provided for hundreds of large industries by U. S. Floating Power Plant trucks—and provided economically.

Worm-Drive, 2½, 3½ and 5 ton
Chain-Drive, 2½ and 3½ ton

THE UNITED STATES MOTOR TRUCK COMPANY, Cincinnati

New York, Philadelphia, Baltimore, Pittsburgh, Cleveland, Denver, Detroit, Chicago, Atlanta, St Louis, Boston, Minneapolis
Dealers in all commercial centers.



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I Know What He Bought But What Did the Other Two Men Buy

Dealers' profits depend upon more than a rushing business. See that all transactions are booked.

Thousands of men, to-day, are doing the same sort of wondering as the man at the top of this page.

The money that will be lost to-day, by failure to "jot it down," would make a great little Christmas gift.

Stop the leaks. They are often the margin between failure and success.

Where records are not carefully kept, losses breed suspicion; loyal helpers are made uneasy—or taught carelessness.

The business that can't afford a bookkeeper or at the least regular supervision by an accountant, has small chance of surviving.

The man who "keeps it all in his head" is only about two jumps ahead of the sheriff.

Overhaul Your Account System Today

Send for your copy of our Booklet—by an expert—on "How to Run a Garage."
Manufacturers, Jobbers and their Salesmen are anxious to co-operate with you. Ask them for ideas.

National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

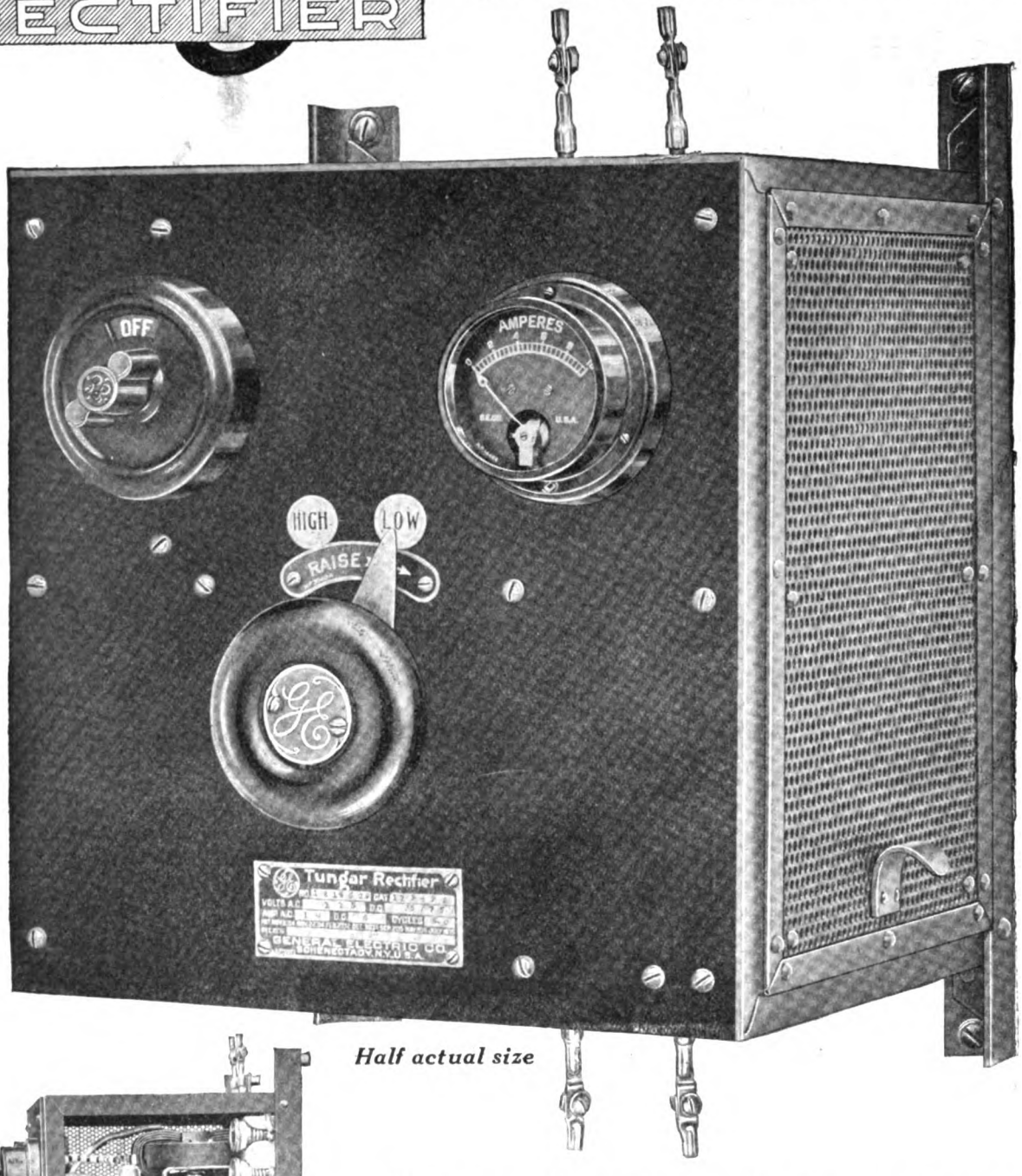
CITY HALL SQUARE BLDG. CHICAGO, ILL.

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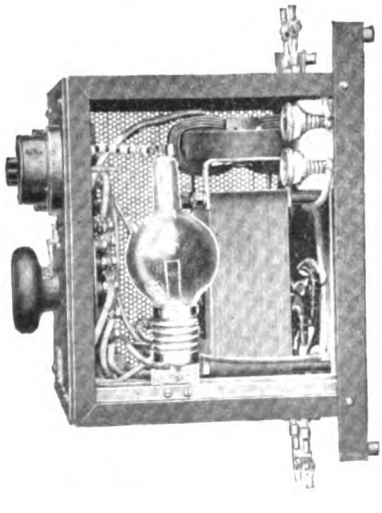
Tungar RECTIFIER

Safe—Simple—Self-Starting

SEE THE G-E EXHIBIT
AT THE NEW YORK and CHICAGO SHOWS



Half actual size



The 6 amp. 75 volt Tungar Rectifier will charge any combination of 3, 4, 5, 6 up to 30 cells at 1, 2, 3 up to 6 or 7 amperes.

It is a practical device demonstrated by actual service. It equips your garage for efficient battery charging at a much lower cost than any other reliable device of similar capacity.

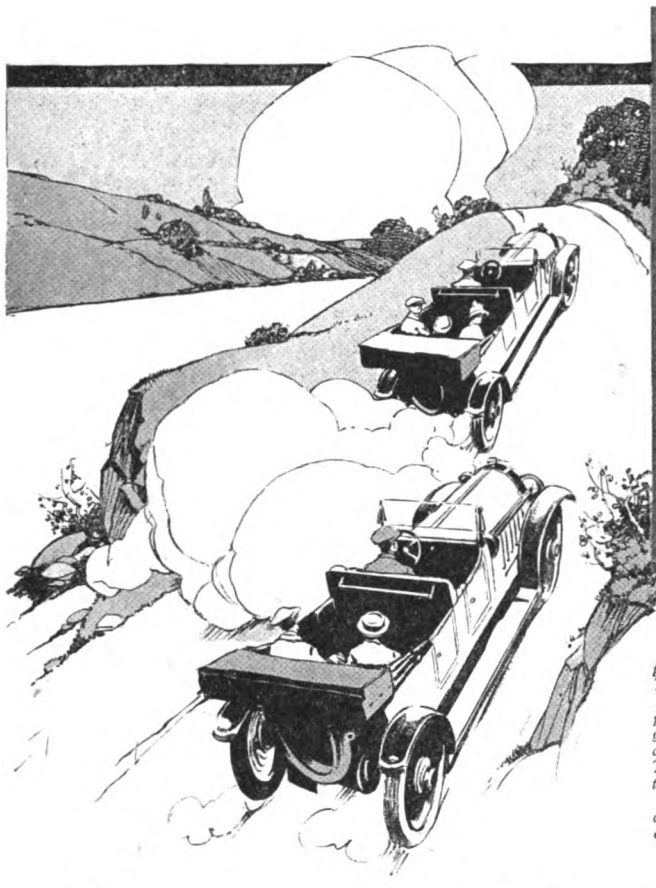
General Electric Company

SCHENECTADY, N. Y.

ASK OUR NEAREST OFFICE FOR BOOKLET B-3412

7520

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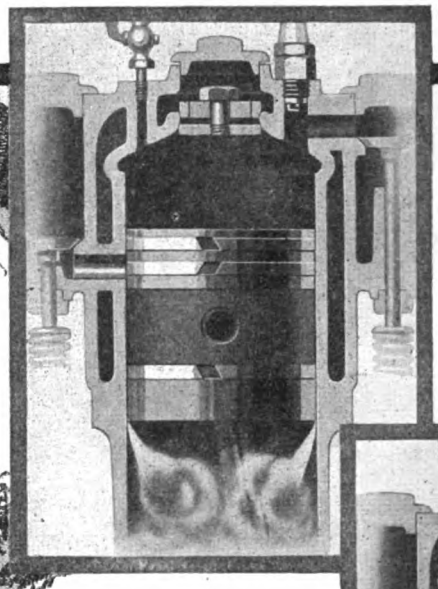


Illustration at left shows the result of using ordinary piston rings that have a gap. Notice that the explosion shoots down into the crank case, past the piston and rings.

This means a loss of 15% to 54% in power. It also causes low gasoline and oil mileage, diluted and ruined lubricating oil and excess carbon trouble.

No ordinary piston ring is gas-tight.

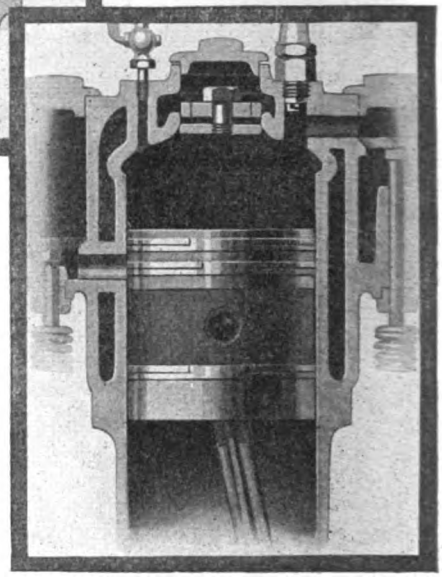


Illustration at right shows the piston equipped with the patented Tenion Rings.

This new device absolutely prevents gaps. It makes the engine gas-tight. It greatly increases power and saves expense. The explosion cannot escape past the piston.

The Tenion Ring is the one device that makes possible 100% engine efficiency.

Why you can't take that hill on high

Hidden inside the engine are little gaps that are wasting probably one hundred gallons of gasoline per year

AN automobile engine can function perfectly only when the piston fits tightly within the cylinder.

Ordinary piston rings cannot give the tight fit so essential, because in order to provide for contraction and expansion, a small section is cut out of each ring, which leaves a gap.

15% to 54% more power— 100 gallons less of gasoline

After eight years of study and experiment on this problem, George C. Du Bois has brought forth the Tenion Ring, an absolutely new device that overcomes the defects of ordinary piston rings.

The Tenion Ring consists of two sections each interlocking over the other. The result is a device that is absolutely gapless—one which seals the piston with a perfect tightness within the cylinder and yet provides for contraction and expansion. This enables the piston to function properly on all strokes.

Thus is stopped the prodigal wastage of gasoline during suction and compression, thereby saving approximately one hundred gallons of gasoline per year.

The Tenion Ring is made of individual castings of the finest gray iron of special formula. It permanently retains its shape, wears tight, stays tight and has two to three times the life of the ordinary piston ring.

What Tenion Rings do

1 *They increase power 15% to 54%.*
2 *They materially reduce carbon ills.*
3 *They insure maximum mileage on gasoline and oil.*
4 *They make possible the operation of the engine at 100% efficiency.*
5 *Tenions eliminate the necessity of reboring and replacing.*
6 *They decrease gasoline consumption up to 40%.*

Tenion Rings bring business

"By putting Tenion Rings in the cylinder of every motor that is taken down in my shop, my customers' cars always work so much better than they ever did before," states L. J. Masterson, proprietor of the Port Henry Garage, Port Henry, N. Y. "The customers are happy, and send their friends when repairs are needed. They think I am a wizard. A big share of my business is due to Tenion Rings."

Andrew Yoncks, a car owner of Albany, N. Y., writes: "Tenion Rings looked good to me, so I had them placed in each cylinder of my Franklin car. The improvement in power is wonderful; now I carry a full load of seven passengers up hills on high—hills that heretofore I always had to make on second speed. The amount of oil used since I installed Tenion Rings has been very much less than before. My car never smokes, and does not collect carbon in the cylinder."

An unusual opportunity for dealers

The Tenion Ring offers a wonderful new opportunity to the accessory dealer. The sale of this splendid device which is so superior to the ordinary piston ring is phenomenal. Sold exclusively through the jobbing trade. If your jobber has not the exact size wanted write or wire us at once.

Tenion Rings—Price List

				each
2¾	in. to 3⅜	in. dia. x 3-16 to ¼	in. width	$1.00
3½	in. to 4	in. dia. x ⅛ to 5-16	in. width	1.00
4⅛	in. to 4½	in. dia. x ⅛ to ⅜	in. width	1.00
4⅝	in. to 4⅞	in. dia. x ¼ to ⅜	in. width	1.75
5	in. to 5½	in. dia. x ¼ to ⅜	in. width	2.00
5⅝	in. to 5⅞	in. dia. x ¼ to ⅜	in. width	2.25
5⅞	in. to 6	in. dia. x ¼ to ⅜	in. width	2.50

Winter Business—cold weather made profitable.

Sales Department

EDWARD A. CASSIDY CO., Inc.
1 Madison Ave. at 40th St., New York
DuBOIS PISTON RING COMPANY



TENION RINGS

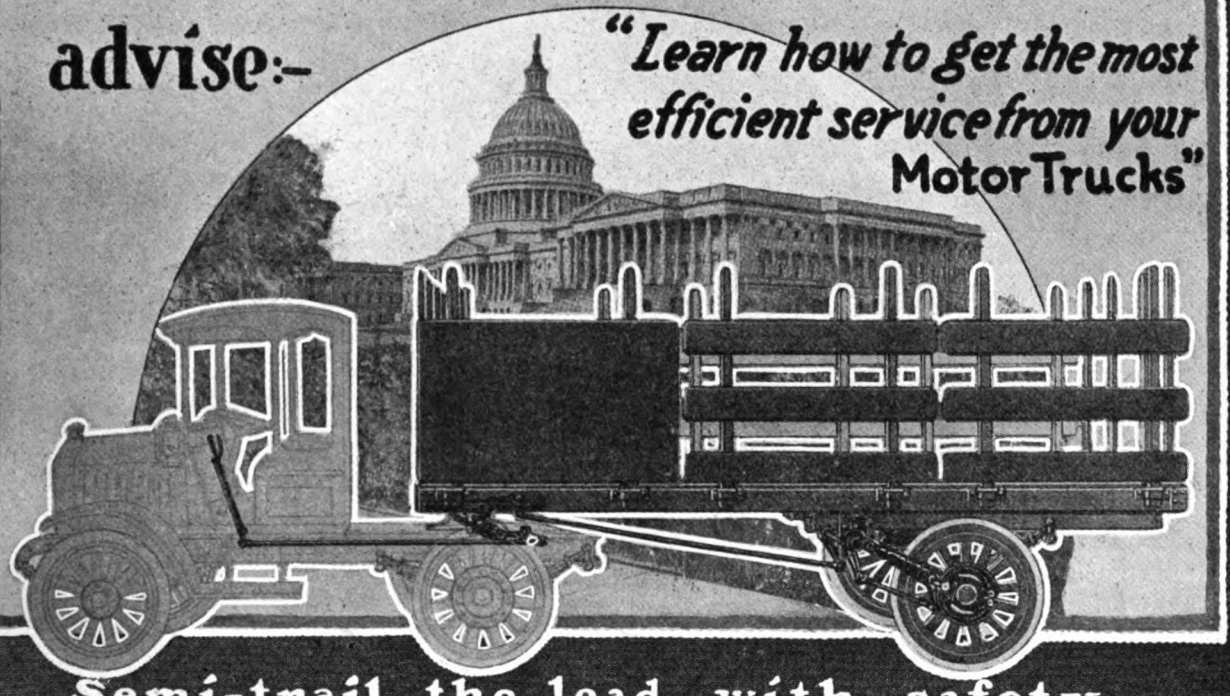
MAKE PISTON GAS-TIGHT—GIVE ENGINE FULL POWER

When writing advertisers please mention Motor World—it identifies you

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The Council of National Defense advise:—

"Learn how to get the most efficient service from your Motor Trucks"



Semi-trail the load with safety on the TRI TON The first semi-trailer with brakes operated from the motor truck seat

A 1-ton Truck successfully *semi-trails* a loaded 3 to 4 ton TRI TON
A 2-ton Truck successfully *semi-trails* a loaded 6 to 7 ton TRI TON
A 3-ton Truck successfully *semi-trails* a loaded 9 to 10 ton TRI TON
A 5-ton Truck successfully *semi-trails* a loaded 15 to 17 ton TRI TON

MOTOR TRUCK DEALERS OWE IT TO THEIR COMMUNITY to show truck users the remarkable economies of the most efficient developed system of highway motor haulage.

The *TRI TON* semi-trailer will *speed up* your truck sales and offset the recent decline in passenger car business.

We will exhibit at the New York Automobile Show, Grand Central Palace, January 5-12, N. E. Corner, 4th floor.

TRITON talks to the Dealer on SPEEDING UP Truck Sales

TRITON talks to the User on Cutting 1/3 off Haulage Costs

The Tri Ton Corporation

250 West 54th St., New York

Name
Address

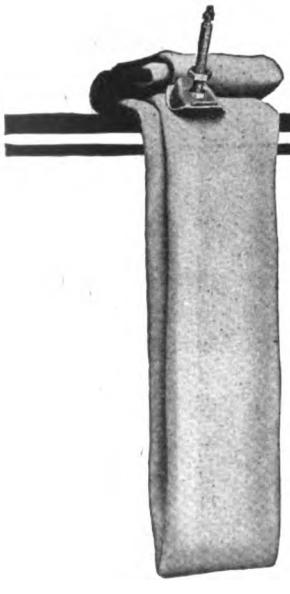
Name
Address

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McGRAW PRODUCTS

Pneumatic Tires
Motor Truck Tires
Inner Tubes





Distributors

WE deal only with *wholesale distributors*—understand their problems—protect their profits—sell them a product that gains new business while holding the old.

The following are only a few of the well-known motor accessory jobbers who are handling McGraw Products in large volume.

Ozark Motor & Supply Co.	Springfield, Mo.
Quigley Tire & Rubber Co.	Memphis, Tenn.
Fort Wayne Oil & Supply Co.	Fort Wayne, Ind.
J. N. Johnson Company	Minneapolis, Minn.
The Harry Svensgaard Sales Corporation	Detroit, Mich.
Universal Accessories Co.	Indianapolis, Ind.
Beckman Auto Tire Co.	Atlanta, Ga.
Appeal Manufacturing & Jobbing Co.	Los Angeles, Cal.
Goodman Tire Company	Los Angeles, Cal.
W. T. Hale & Son	Dodge City, Kansas

McGraw, Imperial, Pullman and Congress Tires and Inner Tubes give satisfaction to the user and insure a profitable, growing business to dealers.

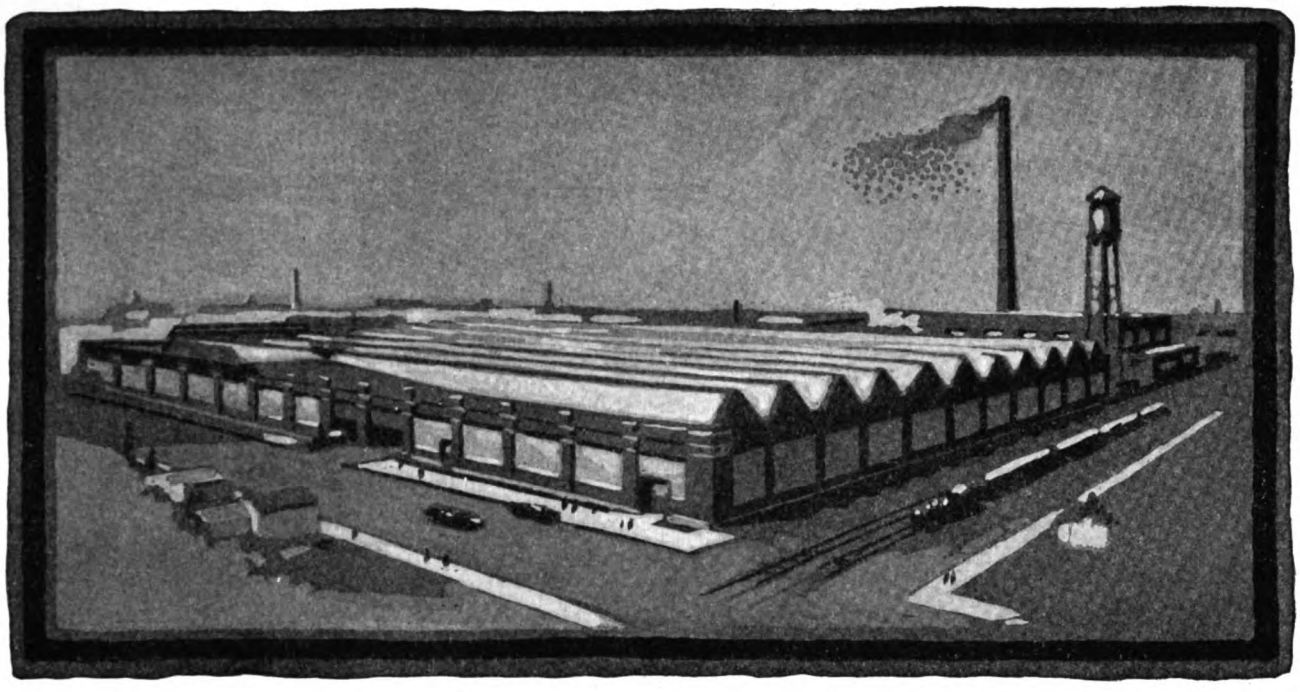
You **will be interested in the details of the McGraw proposition. Write today.**

THE McGRAW TIRE & RUBBER CO.

East Palestine, Ohio

Distributing Warehouses • • New York • • Atlanta • • St. Louis • • San Francisco

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Send for your set of Strom Bearing data sheets, if you have not already done so.

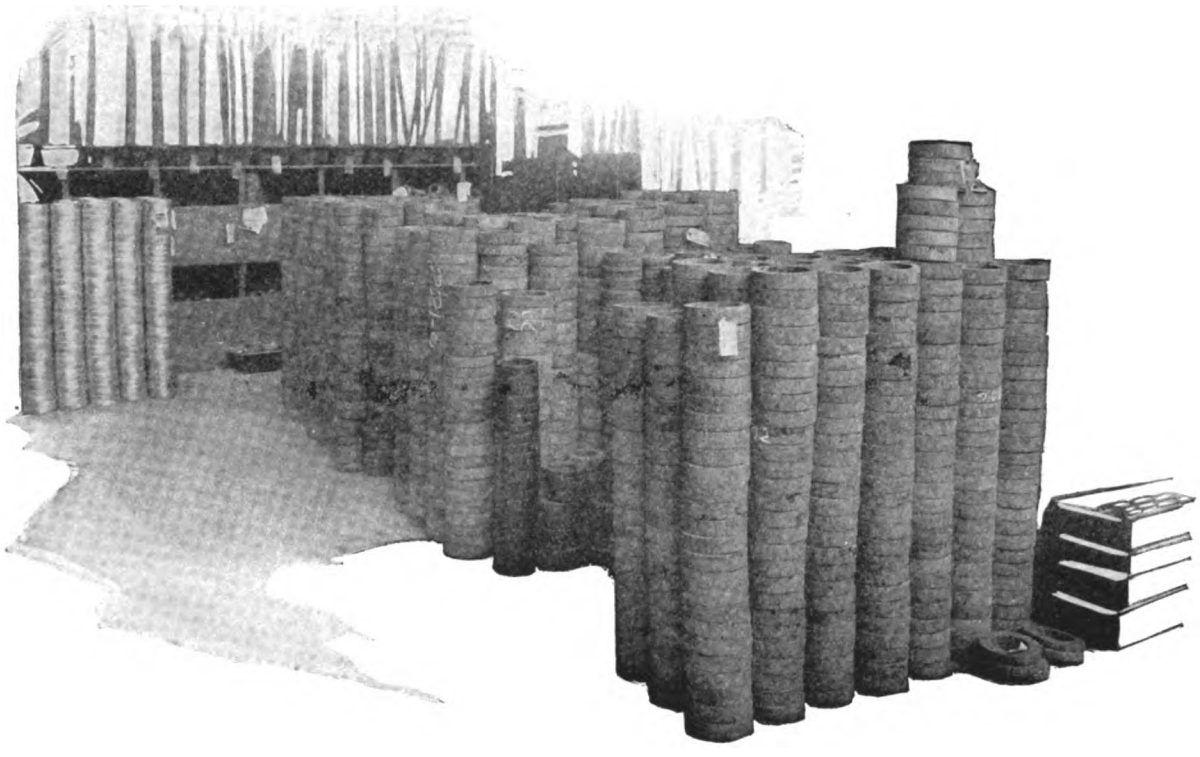
You will find a large range of special size bearings to select from, as well as other new lists covering additional types of both radials and thrusts.

Your Engineering Department will be glad to have these data sheets.

Strom BEARINGS

FORMERLY U.S. BALL BEARINGS

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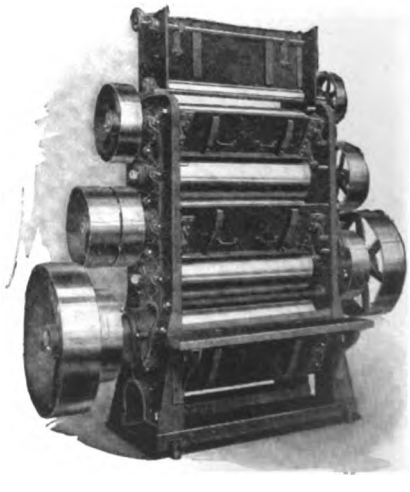
The above illustration shows a stock of forged blanks ready to start on their way through the many refining processes toward the finished bearing.

• • • •

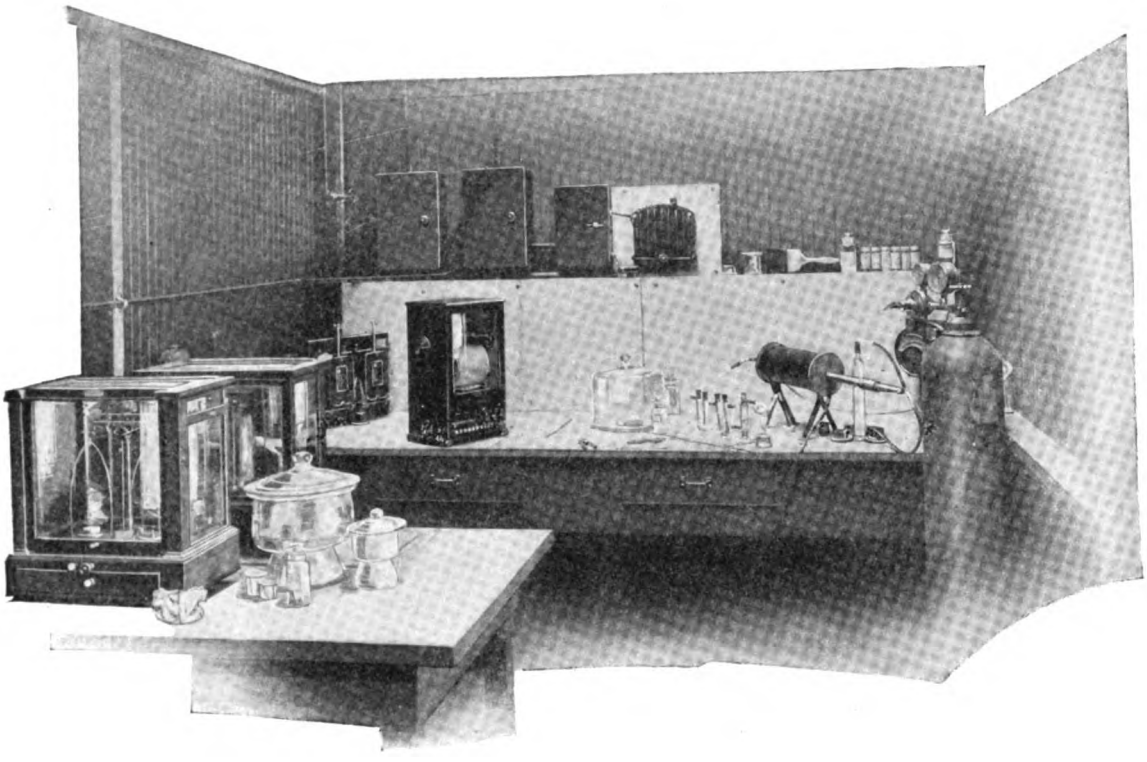
When you think of reducing friction, you instinctively think of the Ball Bearing which has been doing this for years under loads varying from a few ounces to thousands of pounds.

• • • •

Strom BEARINGS

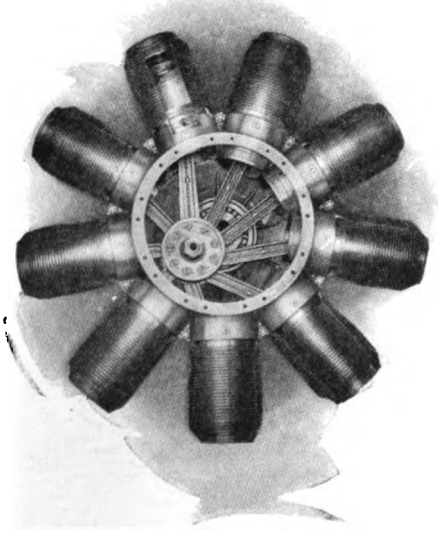


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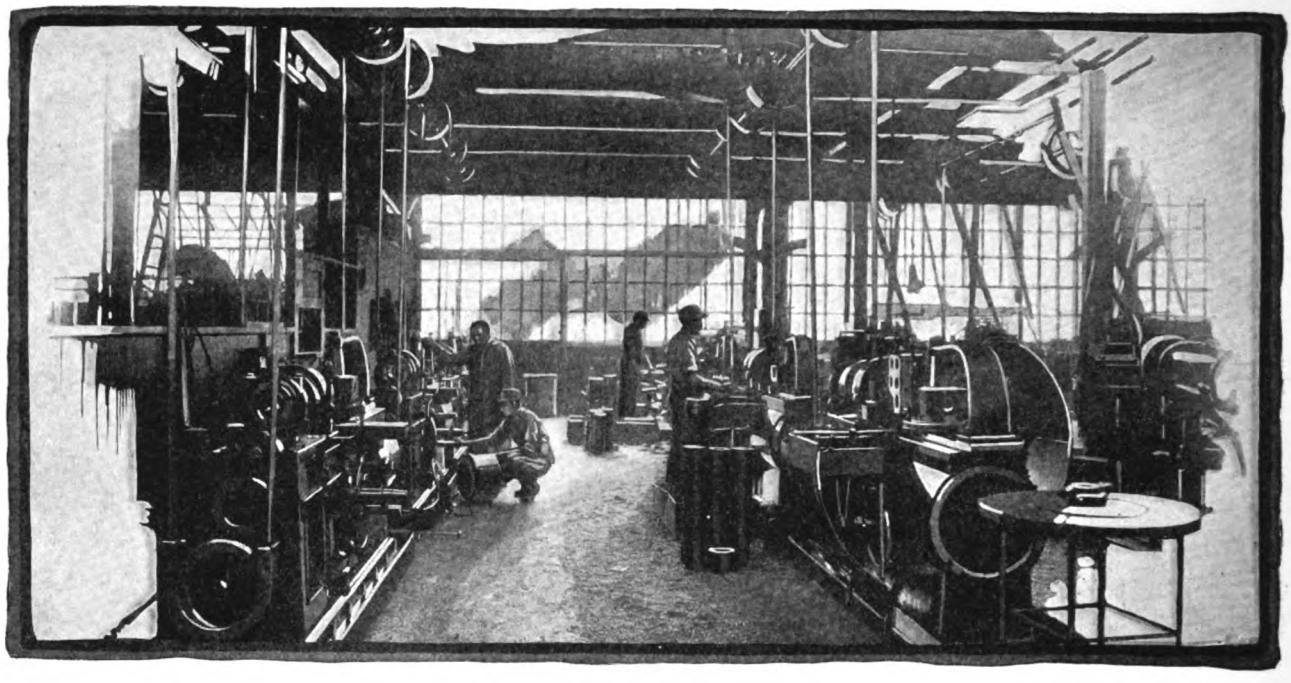
A small section of our laboratories where the quality of steel is determined by the most exhaustive tests.

Ball Bearings are the logical bearings where minimum friction and reliability of service are desired. Witness their extensive use in Airplanes, Tanks, Tractors, Motor Trucks, Motor Cars—in fact, in all classes of machinery where dependable and efficient bearing service must be had.



Strom BEARINGS

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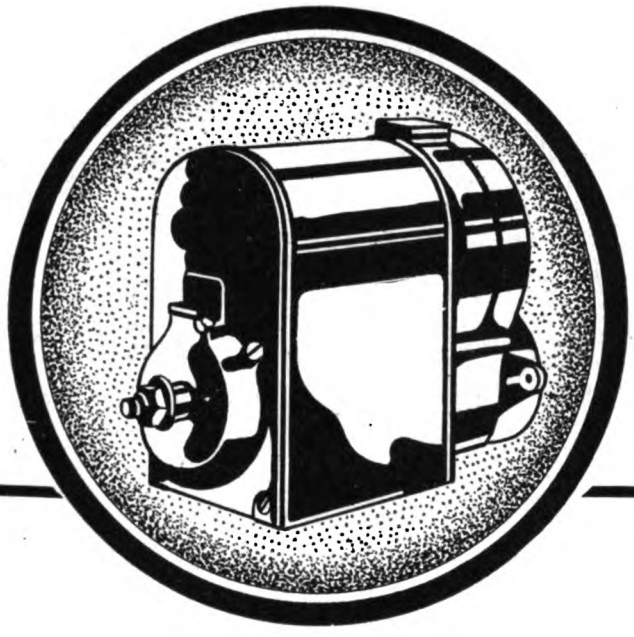
Strom Bearings are made in one of the largest and most completely equipped factories in the world, exclusively devoted to the production of ball bearings.

This plant has a capacity of 10,000 quality bearings a day.

U. S. BALL BEARING MFG. CO.
(Conrad Patent Licensee)
Palmer Street and Kolmar Avenue, Chicago, Illinois

Strom
BEARINGS
FORMERLY U.S. BALL BEARINGS

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Consider the Source of Your Spark

Consider it well, for when the spark falters, so does the motor.

Consider the structural excellence of your Magneto from the electrical standpoint and from the mechanical.

Is it so designed as to yield the highest possible spark-efficiency?

Is it so designed and are the materials so selected that you need not fear its failure because of the shocks and jars of hard service?

How thoroughly is it protected from the harmful effects of dust, water and oil?

How accessible are the parts that require occasional adjusting?

The more searchingly you apply these questions to the Eisemann Magneto, the more certain you will be to agree with the leading manufacturers of trucks, tractors and pleasure cars who have adopted Eisemann as standard equipment. In all, there are 117 of them.

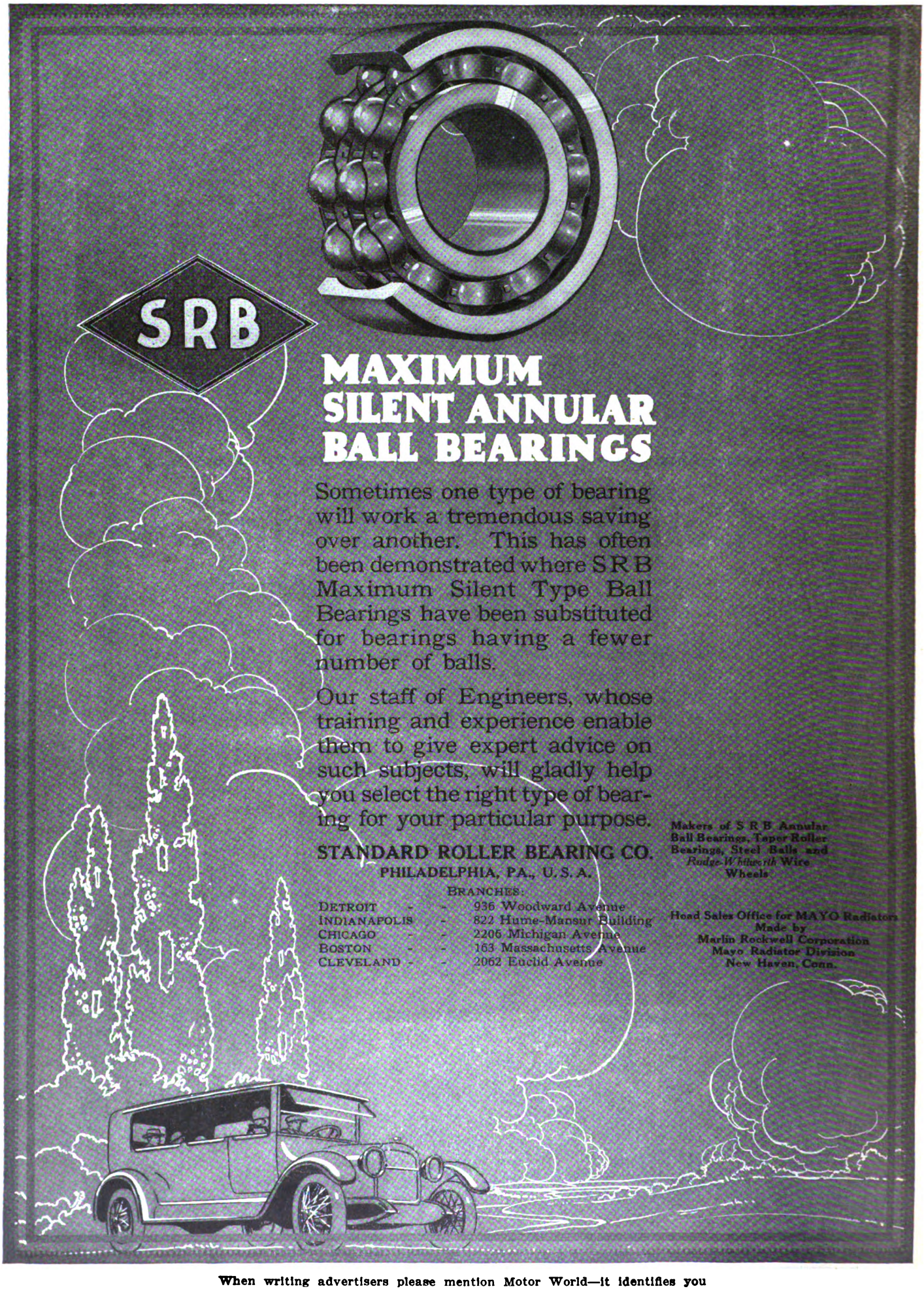
THE EISEMANN MAGNETO CO.

Sales and General Offices: 32-33d St., Brooklyn, N. Y.

Chicago, Ill., 910 South Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

EISEMANN
MAGNETO

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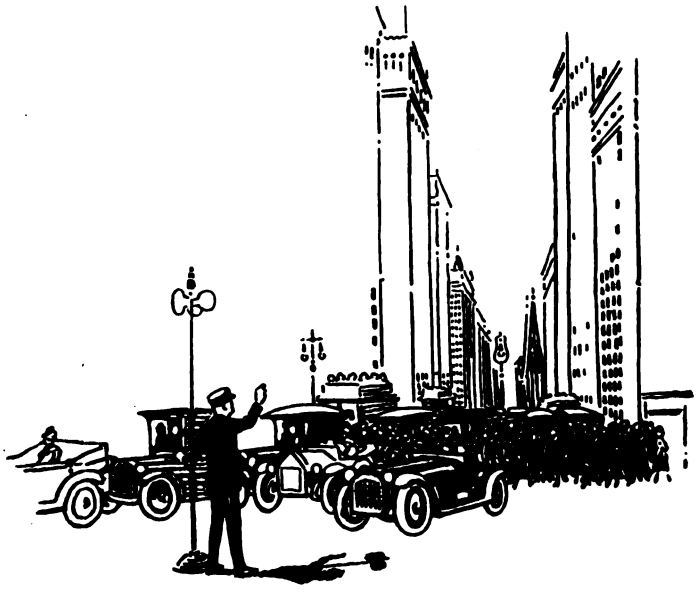


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"—and after I turned the switch to 'H' I never shifted once all the way down that long crowded avenue"

Forced to creep along down the avenue, in crowded traffic, at irregular speeds, the motor began to choke and miss, a natural thing in "high"—but when that Philbrin Switch was turned to "H" we slid along in high as smoothly at four miles as at forty, and shot ahead at ease when an open space permitted.

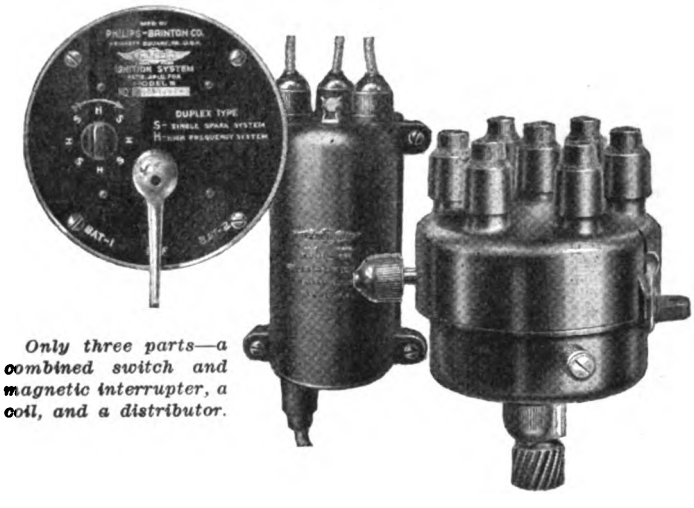
The letter "H" on the Philbrin switch designates the Philbrin High Frequency System which delivers to each cylinder in its firing order a thousand sparks a second. No matter if your spark plugs are foul, cylinders cold, fuel and carburetion poor, any mixture, under almost any conditions, is instantly fired by that stream of hot intense sparks.



But for the ordinary steady pull, the Philbrin Single Spark System is unsurpassed. Its new patented contact maker and condenser builds up the biggest, fattest spark you ever saw. This system utilizes the leanest mixtures—saves fuel—and increases your power and flexibility.

The increased dependability made possible by Philbrin Duplex Ignition permits you to easily make the steepest grades, or creep along on high through crowded city streets. It accomplishes results that could not be expected of any single system, and each system, separately, has been developed to the highest point of efficiency.

Philbrin Duplex is the last word in Ignition. Specify Philbrin for your car. Dealers interested in a system that's most simple, easy to install on any car, and gives satisfaction—Plus—should write for our exclusive dealer proposition.



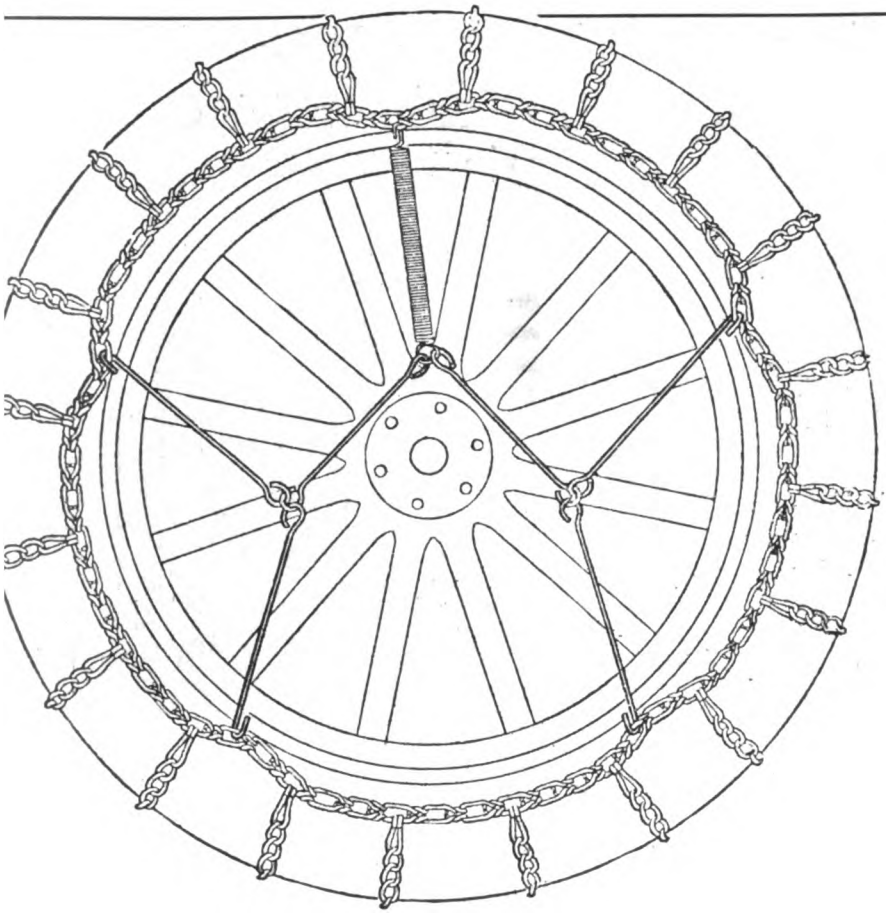
Only three parts—a combined switch and magnetic interrupter, a coil, and a distributor.

PHILIPS-BRINTON COMPANY
503 S. Broad St. Kennett Square, Pa.

PHILBRIN
DUPLEX IGNITION

—with a second system to spur the motor to super-service.

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The Fastest Selling Winter Accessory A Dealer Can Handle

Small Investment — Good Profit—Takes up hardly any room—Every autoist needs them—Ought to have them—And has no excuse for being without them at this Price!

MERCHANT'S Anti-Skid Chain TIGHTENER

$1.00 A PAIR

If dealer does not handle, sold direct prepaid on receipt of price.

A glance at the illustration shows how perfectly simple and easy it is to attach this Chain Tightener.

You can take it out and slip it on any customer's car that drives up to your place with chains on. It will take about one minute to do this, and it means a sale **every time.** Once he sees how well it works he will never let you take it off.

And the more you sell the faster they sell, for every motorist that sees them on another car wants them on his own.

This tightener catches the chain at five points (as shown) and gives an easy, steady tension all around. It holds the chain in place, prevents its dragging or rattling, while still allowing it to creep on the tires and carry out to the full its non-skidding action. In fact, it helps this action by preventing the chain from slipping.

It keeps the chain from pounding against the fenders, and obviates the danger of the chain's unhooking accidentally.

JOBBERS—DEALERS: Write at once for full particulars and exceedingly generous terms. Now is the season to sell these things.

M. H. MERCHANT

236 Emma Street, **Syracuse, N. Y.**

Ref.—Syracuse Trust Co.

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WOOD'S EVERLOC TIRE PATCH

HERE you are! Just take Wood's Everloc along and you can permanently repair any puncture or blowout up to 17 inches in length. And it will only take you a few minutes at that.

Wood's Everloc makes a permanent bond from the minute it clutches your tube. No heat, tools or experience are necessary to make a successful repair. The heat of the road vulcanizes Wood's Everloc into a part of the tube itself. Wood's Everloc is the original, self-vulcanizing tire patch, made of pure Para Rubber and genuine U. S. Khaki.

No more heat vulcanizing after you know Wood's Everloc. It makes a quick, safe repair with no burning or overcuring and at approximately one-twentieth the cost of old-fashioned heat vulcanizing.

A million motorists use Wood's Everloc. Try it yourself for all tube repairs.

At all live dealers in three sizes: 50c, $1.00, $1.50.

DEALERS: Write us or your jobber for proposition on Wood's Everloc today.

W. C. WOOD COMPANY

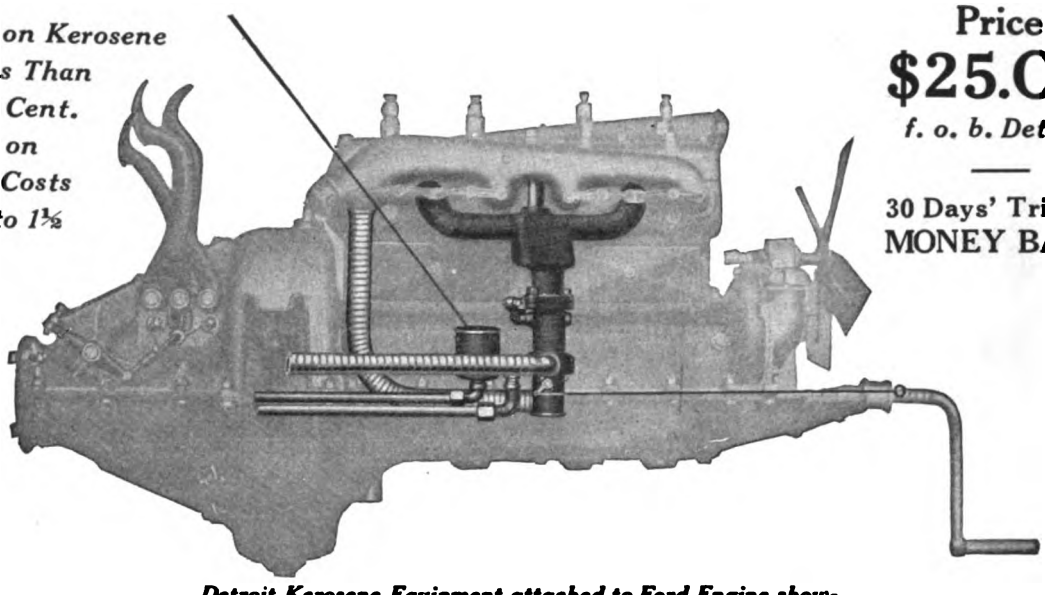
74 Western Avenue **Minneapolis, Minnesota**

Special Garage Size 20x28 inches

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Detroit *Kerosene* Equipment For Fords

***One Mile** on Kerosene Costs Less Than **One-Half** Cent. **One mile** on **Gasoline** Costs from 1¼ to 1½ Cents.*



Price
$25.00
f. o. b. Detroit

30 Days' Trial or MONEY BACK

Detroit Kerosene Equipment attached to Ford Engine showing the entire installation except the Gasoline tank located under floor board.

Use Kerosene
(*Coal Oil*)

A Ford car or truck is a daily necessity. It proves a daily economy.

By using Kerosene instead of Gasoline you can effect a *further economy of 60 per cent*

Act Promptly! Buy a

Detroit Kerosene Equipment For Fords

Save 60 per cent. of mileage cost

These are Days of Strict Economy

The Kerosene Equipment ready to be attached to Ford engine consists of:

1. The Detroit Kerosene Carburetor (patent pending) with only one float chamber (for kerosene); the three way valve admits the gasoline for starting.

   Is non-adjustable—throttles down smoothly—idles without loading—increases mileage—is a positive fuel and money-saver—makes no condensation in cylinders and—reduces speed changing.
2. Intake Manifold with drying chamber.
3. Flexible tubings.
4. Gasoline tank, tube and couplings.

INSTALLATION

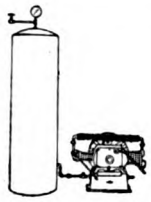
1. Drill a ⅞-inch hole into center of exhaust manifold.
2. Remove intake manifold.
3. Clamp on new manifold.

DETROIT KEROSENE CARBURETOR CO., Department 26 Kresge Building Detroit, Mich.

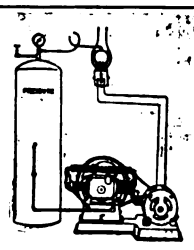
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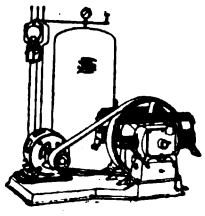
De Luxe Two Stage Complete Automatic Unit. Capacity four cubic feet per minute. Self contained. Runs from lamp socket.



Two Stage Units With Tight and Loose Pulley for line shaft drive. Equipment 31T, capacity four cubic feet per minute. Equipment 41-T, capacity 10 cubic feet per minute.



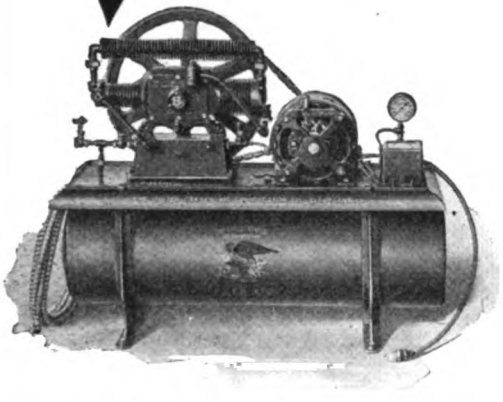
Complete Two Stage Automatic Unit. Equipment 34, capacity four cubic feet per minute. Equipment 44, capacity 10 cubic feet per minute.



Two Stage Duplex Automatic Air Plant. Equipment 48, capacity 20 cubic feet per minute.



Portable Two Stage Compressor. Equipment 35, capacity four cubic feet per minute.



The U. S. Two Stage De Luxe Automatic Air Unit

This is a garage and free air station compressor De Luxe, incorporating more improvements and refinements than any unit ever produced.

It exactly meets the demands of a large majority of garages as proved by the fact that more of this number are sold than all our other compressors combined.

The De Luxe is unequalled in all 'round features. It maintains high pressure in great volume, is extremely quiet in operation, handsome in appearance, entirely automatic in operation, self oiling and requires only a minimum of attention.

To buy a De Luxe compressor means to obtain the best and be assured of long continued satisfaction. This outfit has been tried for you and found not wanting by thousands of garagemen thruout the country and by several corporations of international prominence who have found them so superior as to be adopted as standard equipment for all their installations.

The Leader of a Complete and Remarkably Successful Line

THE Two Stage principle of operation as utilized in United States Air Compressors has been proven absolutely unequalled and the perfected compressor combined with various tank equipments until the line is now as complete as can be desired, incorporating units for every requirement.

The leading number of the United States line is described at length on this page and several of the other units referred to briefly. The De Luxe Unit is ideal for a majority of requirements: Equipment 48 Duplex suited for garages having unusual conditions, while Equipment 31-T or 41-T are of interest to those who wish to use line shaft drive. Several other units are manufactured and compressors without any equipment whatever may be purchased if desired.

In addition to U. S. Two Stage Compressors a complete line of Single Stage Compressors is manufactured as briefly described below. These are as efficient and highly refined as it is possible to produce under the Single Stage principle.

Send for our new 32-page catalog, just off the press.

See Us at the Auto Shows

New York, Space D-15, Fourth Floor, Grand Central Palace, Jan. 5th-12th. Chicago, Space 3, Coliseum Basement, Jan. 26th-Feb. 22d. Boston, Space 518, Mechanics Bldg., March 2d-9th.

The United States Air Compressor Co.
Cleveland, Ohio

Gentlemen:

Please send us your catalog, as advertised in Motor World.

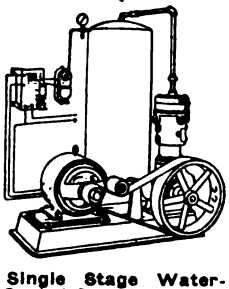
Name .....

Address ..... City .....

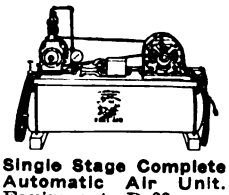
Date .....

The United States Air Compressor Co.

6530 Carnegie Ave., Cleveland, Ohio



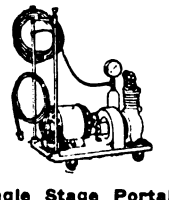
Single Stage Water-Cooled Complete Automatic Air Plant. Equipment G-15, capacity 21 cubic feet per minute.



Single Stage Complete Automatic Air Unit. Equipment D-22, capacity 2½ cubic feet per minute.



Single Stage Air Unit. Equipment G-11, capacity 1½ cubic feet per minute.

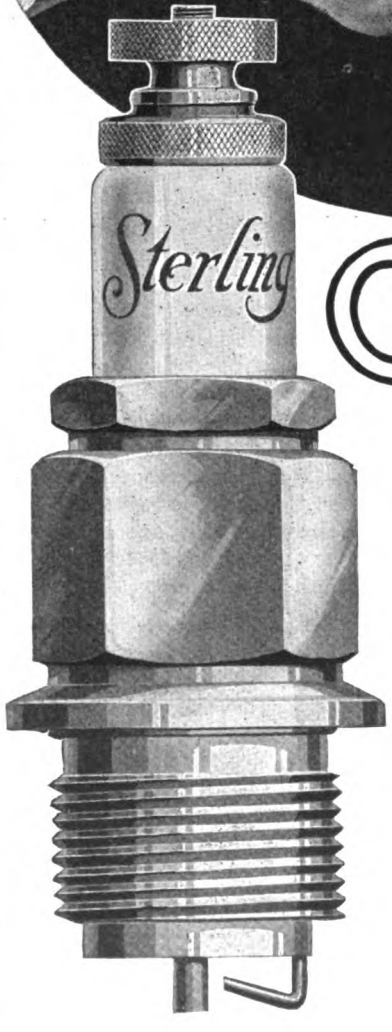


Single Stage Portable Direct Inflation Air Unit. Equipment G-12, capacity 1½ cubic feet per minute.

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Sterling Cleanable



A size and style for every car

Sterling Spark Plugs will give long-time service because, being separable, they are readily cleanable—by the simple and inexpensive process of wiping with a cloth or waste.

If your car was not equipped with Sterling Spark Plugs you will replace the plugs ultimately. Then use Sterlings, and note the improved power—the sweeter running motor.

You will be delighted by the ease with which you can make your Sterlings new again when carbon accumulates.

Ruggedness is built into Sterling plugs, heavy electrodes that cannot warp, porcelains that heat won't break, copper-asbestos washers that allow cleaning time and again, without impairing the leak-proof adjustment.

Dealers who stock Sterling plugs render customers real service —and reap the benefits in profit and prestige.

For sale by progressive garages and supply dealers everywhere.

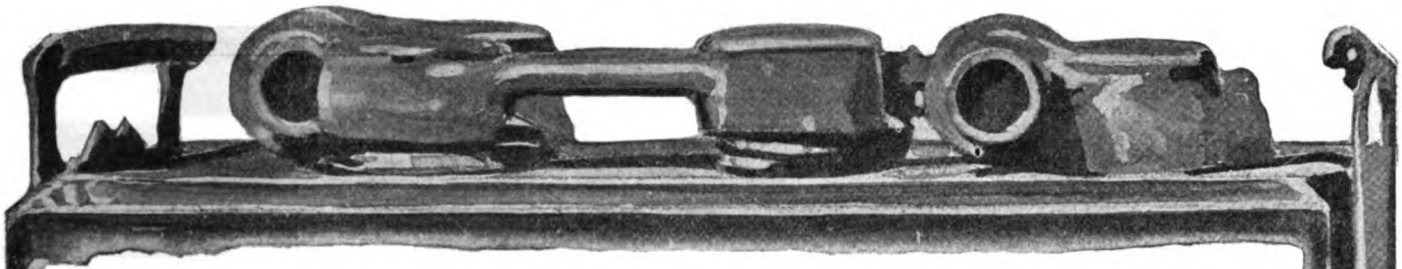
Lockwood-Ash Motor Co.

1954 Main Street

Jackson Michigan

(31)

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A Name *and a* Record

Super Hard—

is the recognized name of the *genuine* Gould Super-Hard Plate which has never been successfully imitated or equaled for sustained high capacity and long life.

Ten Years Ago—

Gould produced the *Super-Hard* plate, containing a hard, compactly bound active material, giving the high capacity of "soft paste" but incomparably greater durability and ruggedness. This plate long ago proved its superiority in the hardest fields of battery service and is the prime reason for the long life of Gould Starting-Lighting Batteries.

Visit our Exhibit at the Auto Show

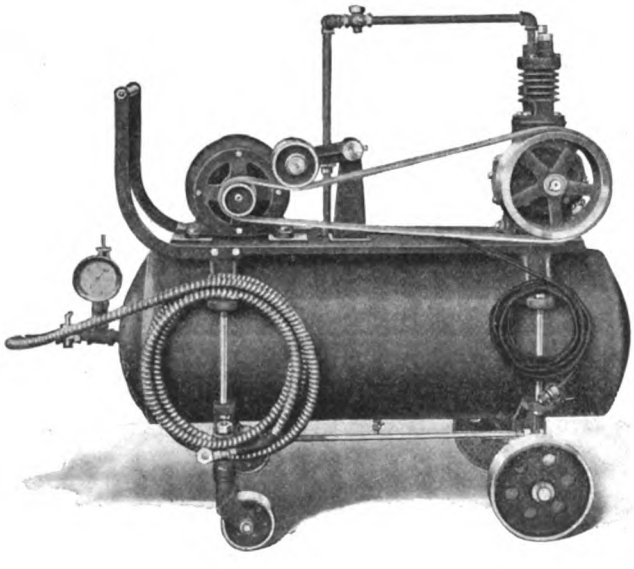
Gould Storage Battery Co.

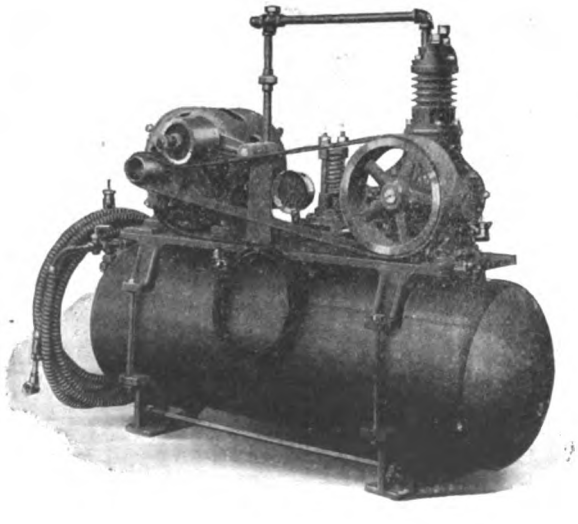
30 East 42nd Street, New York

GOULD STORAGE BATTERY

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A GARDNER GARAGE PUMP





Keeps Your Customers Satisfied

It fills your storage tank quickly with clean, pure air free from oil.

No waiting or delays with a Gardner.

This Means Real Service

Forty different styles and sizes. Manufactured by a company having fifty years' manufacturing experience and whose products are known everywhere.

Write us for booklet A C 14 A—It tells you how to make your air service pay.

The Gardner Governor Company

1702 Fisher Bldg.
Chicago, Ill.

302 Singer Bldg.,
New York City.

T. T. Burchfield Co.,
604 Arch St.,
Philadelphia, Pa.

Quincy, Illinois,
Williamson St.

Rix Compressed Air
& Drill Co.,
505 Howard St.,
San Francisco, Cal.

Rix Compressed Air
& Drill Co.,
409-11 E. Third St.,
Los Angeles, Cal.

Don't let your jobber try to sell you a cheaper pump. It won't give the service.

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Safeguard the Arteries of the Motor Car

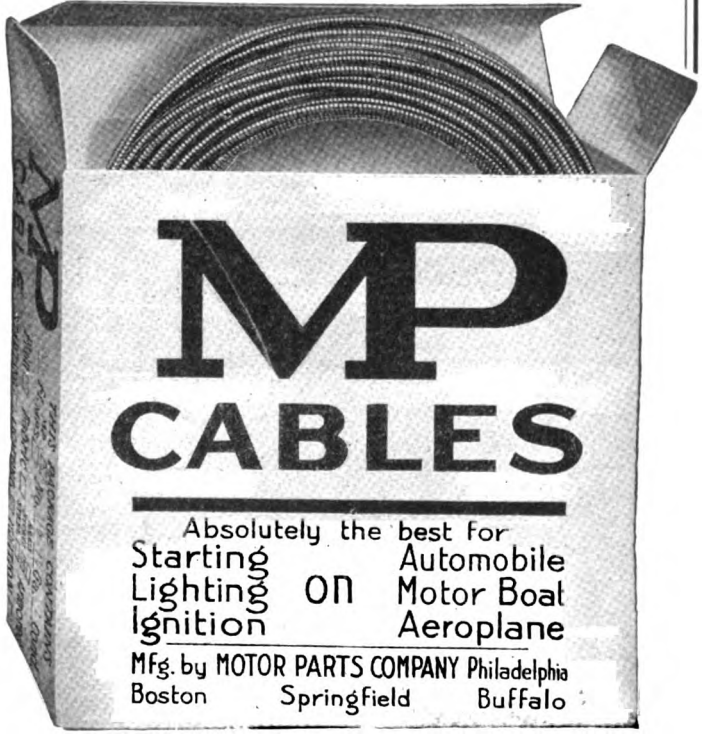
THE broken cable, hidden underneath the chassis, may mean a dozen difficulties that will make the car owner say "Never again."

Broken cables are not rare. They happen every day, due to poor insulation and skimping in the manufacturing processes thru which the cable passes.

Good cable is important—MP Cables are made with a full realization of the need for good cable—its manufacture is superintended by practical men, who themselves have passed thru the school of practical rewiring.

Be sure your next rewiring job goes out insured by MP Cable. Be sure the Arteries of the Motor Car are strong and capable of standing the strain of the most severe service.

MP Cables are carried in stock for immediate deliveries, in convenient packages, guaranteed good and economical. Your jobber can supply you, a post card will bring you interesting prices by return mail.



MP TRADE SERVICE

MOTOR PARTS COMPANY

North Broad Street, Philadelphia

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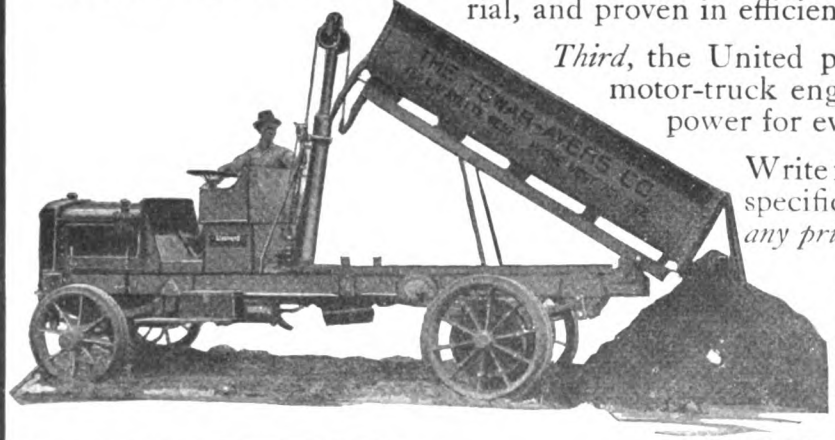
The United will give you low cost per ton mile

THE international reputation of United Trucks for unusually low cost per ton mile is due to a combination of reasons. *First*, the worm-gear drive which eliminates waste by insuring maximum power delivered to the rear wheels.

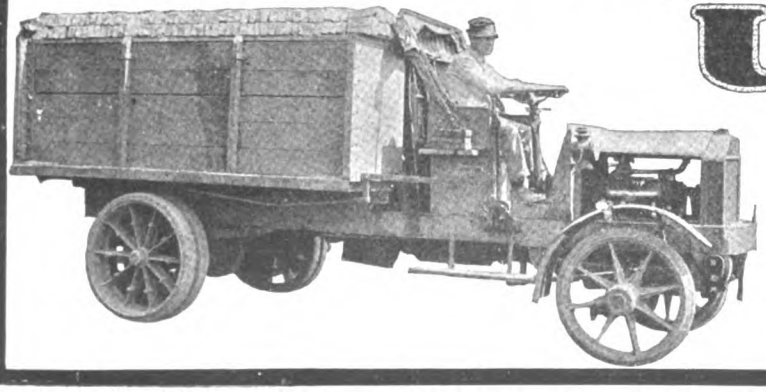
Second, every unit of construction from power plant to springs is of the highest grade material, and proven in efficiency. This insures *low repair expense.*

Third, the United power plants are the most efficient motor-truck engines made. They have the reserve power for every emergency.

Write for catalog and compare the United specifications with those of *any* truck *at any price!* Send for catalog today.



United Trucks are built in 2-ton, 3½-ton, 4-ton and 5-ton sizes.



UNITED TRUCKS

2-ton - - -	$2350
3½-ton - - -	$3150
4-ton - - -	$3450
5-ton - - -	$4250

UNITED MOTORS COMPANY
671 North Street Grand Rapids, Michigan

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DEPENDABLE FREE AIR WITHOUT OIL



New York Show Exhibit
Spaces D-171-172

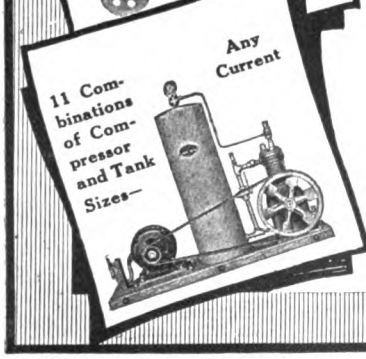
Chicago Show Exhibit
Armory Balcony Spaces 23-24

Better Service Brings You More Trade

Auto owners have awakened to the fact that all Free Air Service is not alike. They are demanding PURE AIR for their tires because they have learned that oil rots tires and that AIR FREE FROM OIL means less blowouts, fewer punctures, greater tire mileage, less repairs and a great saving in up-keep every month. Cater to the demands of auto owners —give them what they want. Make your place the most popular in town by furnishing







CURTIS AIR
FREE FROM OIL

Curtis Compressors are the result of 25 years experience in the manufacture of high grade pneumatic machinery. They are reliable, dependable, require practically no attention, are economical to operate, guaranteed to stand up under the severest strains of hard usage and furnish a continuous supply of cool, pure, clean air. While others claim to furnish air free from oil, Curtis is the only Garage Air Compressor with the controlled splash oil system—**our own exclusive patented device** which prevents flooding the cylinder with more oil than it needs or can use—and eliminates all danger of forcing oil into the air line. Curtis Air is pure air—free from impurities—free from oil—the kind of air that makes tires last longer and pleases every patron.

Curtis Compressors Pay For Themselves

They build business—hold your old trade—bring new patrons to your door—and by the superiority of your Free Air Service, create a feeling of confidence in the quality and reliability of your entire stock. And more than that—a Curtis Compressor will save you big money by supplying air for air hoists, painting, cleaning, vulcanizing, blowing dust and drillings from tools and serving you in many other ways.

5 Sizes—125 Combinations

There is a Curtis Compressor to meet the requirements of your business in every way —just the size, arrangement and price to please you. It will pay you to investigate. Ask your jobber—or cut out and mail us the attached coupon TODAY.

Curtis Pneumatic Machinery Co.
1546 Kienlen Ave.
St. Louis, Mo.

Gentlemen: Please send me full details on Curtis Air Compressors —your proposition and low prices.

Name .....

Address .....

Jobber's Name .....

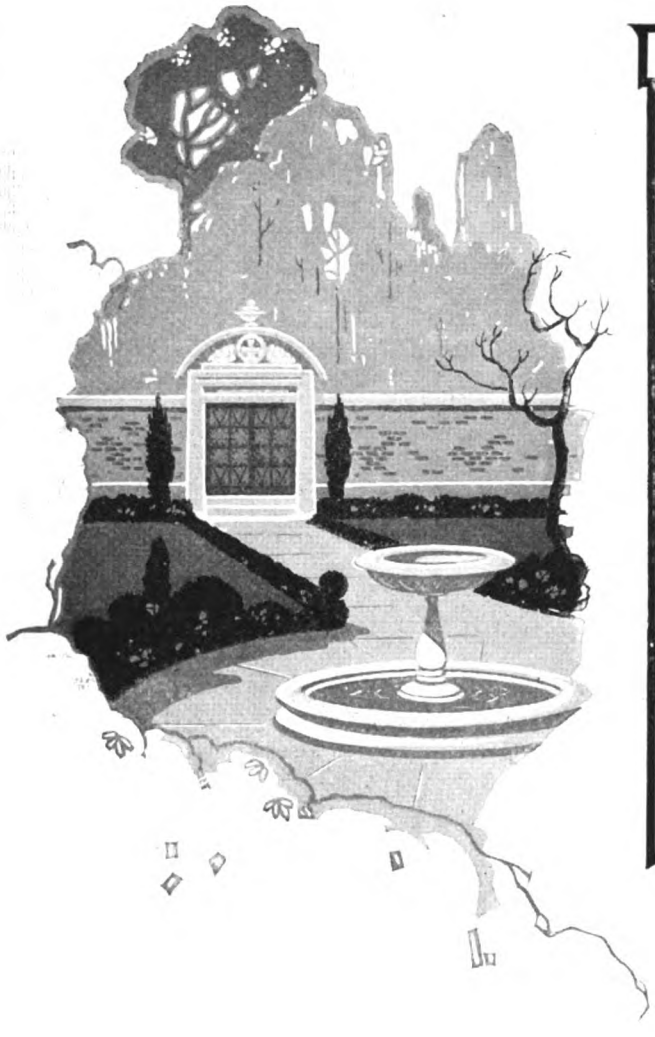
Address .....

Curtis Pneumatic Mach. Co.

1546 Kienlen Ave., St. Louis, Mo.

Branch Office
531-B Hudson Terminal,
New York City

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EMPIRE

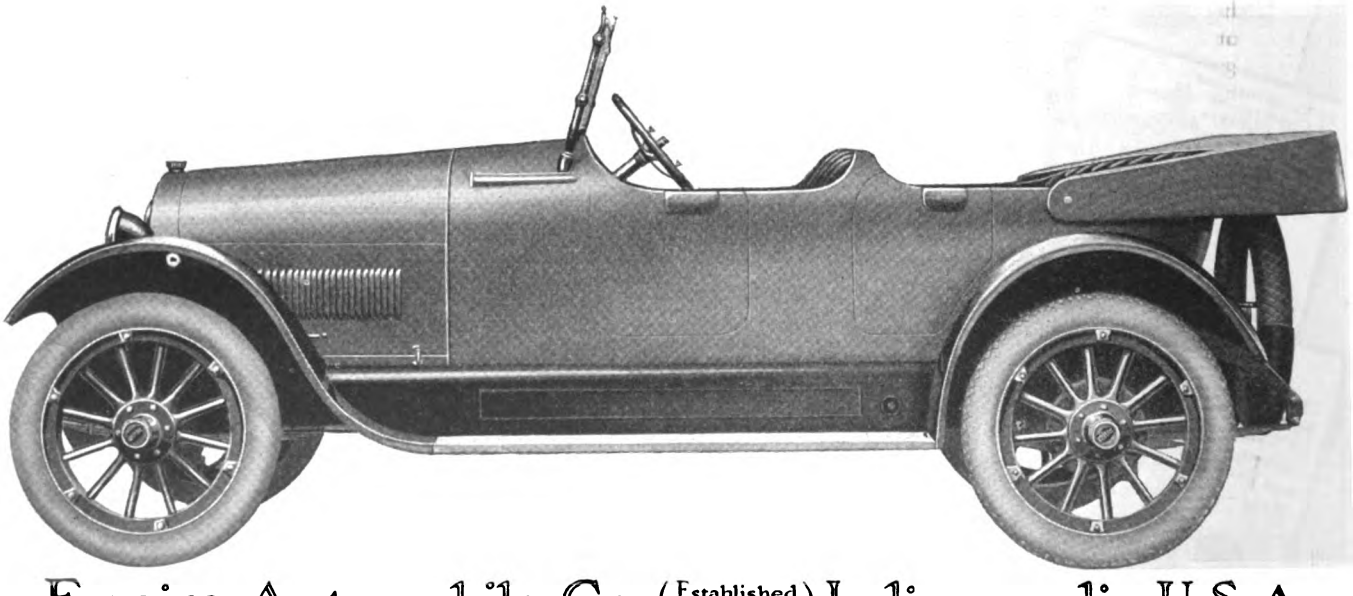
A High-Class Car At a Surprising Price

Looks like a thoroughbred, with its long, slender graceful lines, and high hood! And what's more, it is a thoroughbred. It's been a mighty good car during nine years of steady improvement.

In the language of your tailor, each Empire car is "custom-made," not "ready-made."

It is a big, handsome, roomy car of remarkably easy riding quality with every mechanical detail perfected and every item of up-to-date equipment provided.

Every detail of the chassis measures up to its six cylinder Continental motor. The Empire gives you a real value not approached by any other car in its price class.



Empire Automobile Co., (Established 1908) Indianapolis, U.S.A.

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EMPIRE

Get in Right —NOW!

The Empire Fills Out Your Line with a High-Grade Car in the Old Medium Price Range

You are familiar with the Empire. You know it has had nine years' steady growth, and is not only one of the handsomest, but is one of the best-made cars in America. Its output has been placed in comparatively few markets. In these markets it is extremely popular. Complaints of all kinds have averaged less than 2 per cent of sales.

You will get the cars you contract for. We are so well fixed with parts and materials that cars can be made and delivered on schedule time. We have an immense stock of parts and materials, accessories, etc., in our warehouse, inspected and paid for.

You are dealing with a sound company. As you probably know, the Empire Automobile Co. is not merely a rich concern in itself, but it is controlled and operated by men whose resources run into the tens of millions.

Remember This—

Other cars of the Empire class have advanced to around $2,000. Our early purchase of materials got them to us at pre-war prices. We are figuring on nothing more than the moderate profits we have been making. Your customers get the benefit of the tremendous saving made by our early purchases.

Upon the opposite page is a reprint of the first full-page advertisement of the Empire, to be run in the Saturday Evening Post, Jan. 5. This is to be followed by a full Saturday Evening Post page, each month, to be supplemented by liberal advertising in other great mediums.

It will pay you to write or wire to Indianapolis today, to find out whether your territory is open. If it is, then hop on the next rain for Indianapolis, or make it a point to see us at the Shows.

Specifications

EMPIRE SIX

MOTOR—6 Cylinder EMPIRE—Continental 3¼-inch bore and 4½-inch stroke.

CLUTCH—Borg & Beck, dry plate disc.

TRANSMISSION—Selective sliding gear, three speeds forward and one reverse.

REAR AXLE—Full floating type, with pressed steel housing, spiral bevel drive gears.

WHEELBASE—120 inches.

BRAKES—Internal expanding and external contracting.

WHEELS—Heavy artillery type, selected hickory.

SPRINGS—Front, semi-elliptic, 37 inches long. Rear, semi-elliptic, 52½ inches long.

FRAME—Extra heavy pressed steel channel section, dropped to lower center of gravity.

TIRES—34x4 inches, non-skid on rear wheels.

EQUIPMENT—Complete in every detail.

PRICES—Model 70A Touring, $1345; Model 73 Four Passenger, Four Door Roadster, $1360, f.o.b. Indianapolis.

EMPIRE FOUR

MOTOR—4 Cylinder Empire Teetor-Hartley T-head design, 3⅞ inch bore x 5 inch stroke.

CLUTCH—Borg & Beck single plate disc.

TRANSMISSION—Selective sliding type; three speeds forward and one reverse.

REAR AXLE—Semi-floating.

WHEEL BASE—115 inches.

BRAKES—External contracting and internal expanding.

WHEELS—Wood, artillery type.

SPRINGS—Front, semi-elliptic 36¾ inches long; rear, semi-elliptic 52 inches long.

TIRES—33x4 inch, non-skid type on rear.

EQUIPMENT—Complete in every detail.

PRICES—Model 50, Touring, $1125; Model 51, Two-Passenger Roadster, Wire Wheels, $1165, f.o.b. Indianapolis.

Empire Automobile Co., (Established 1908) Indianapolis, U.S.A.

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The MAXWELL

has standardized PASCO Wire Wheels

on the new Sedan Model—convincing evidence that PASCO'S Exclusive features are winning the attention of the progressive car manufacturer. And the manufacturer knows much more about wire wheels in general than does the car owner.

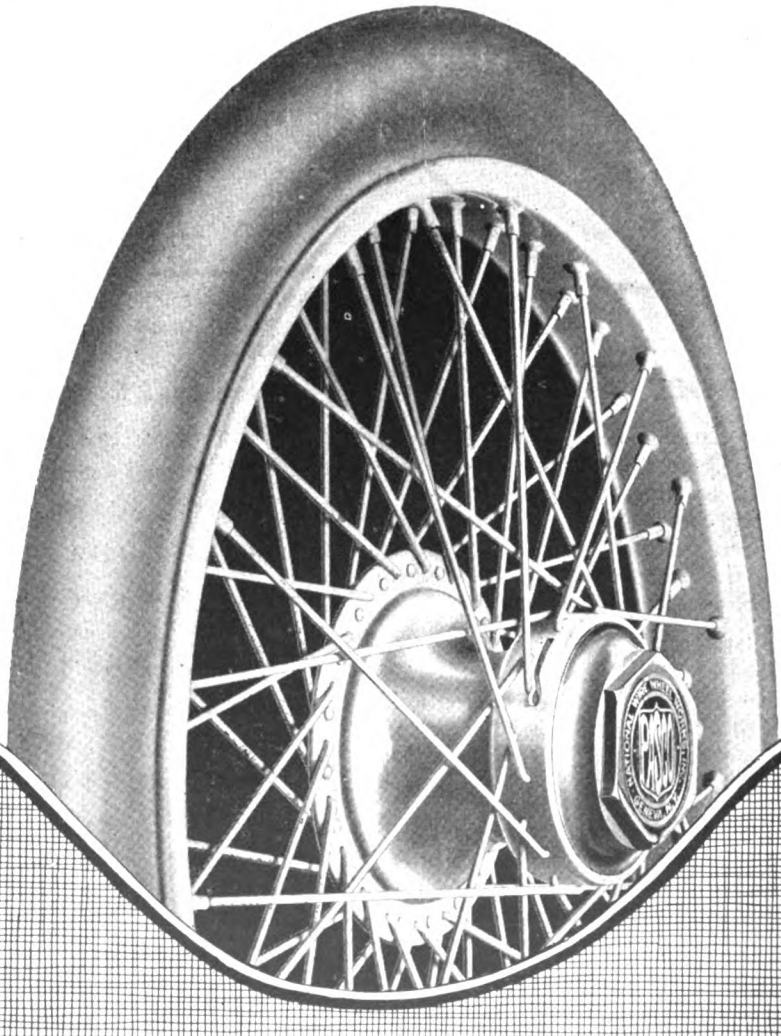
The Four exclusive features of the PASCO are—four series method of spoke lacing and rim punching—indestructible hub cap—ingenious safe locking device—inner hub making wheels interchangeable.

FORD AND MAXWELL pleasure and delivery cars are being equipped with PASCO wheels in increasing numbers.

Set of 5 wheels complete in black, for Fords, $75.00—for Maxwells, in white or black, $100.00. Other colors $5.00 extra.

DEALERS: Write for sales proposition.

NATIONAL WIRE WHEEL WORKS, Inc., Dept. W Geneva, N. Y.



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BRISCOE

DEALERS DISTRIBUTORS

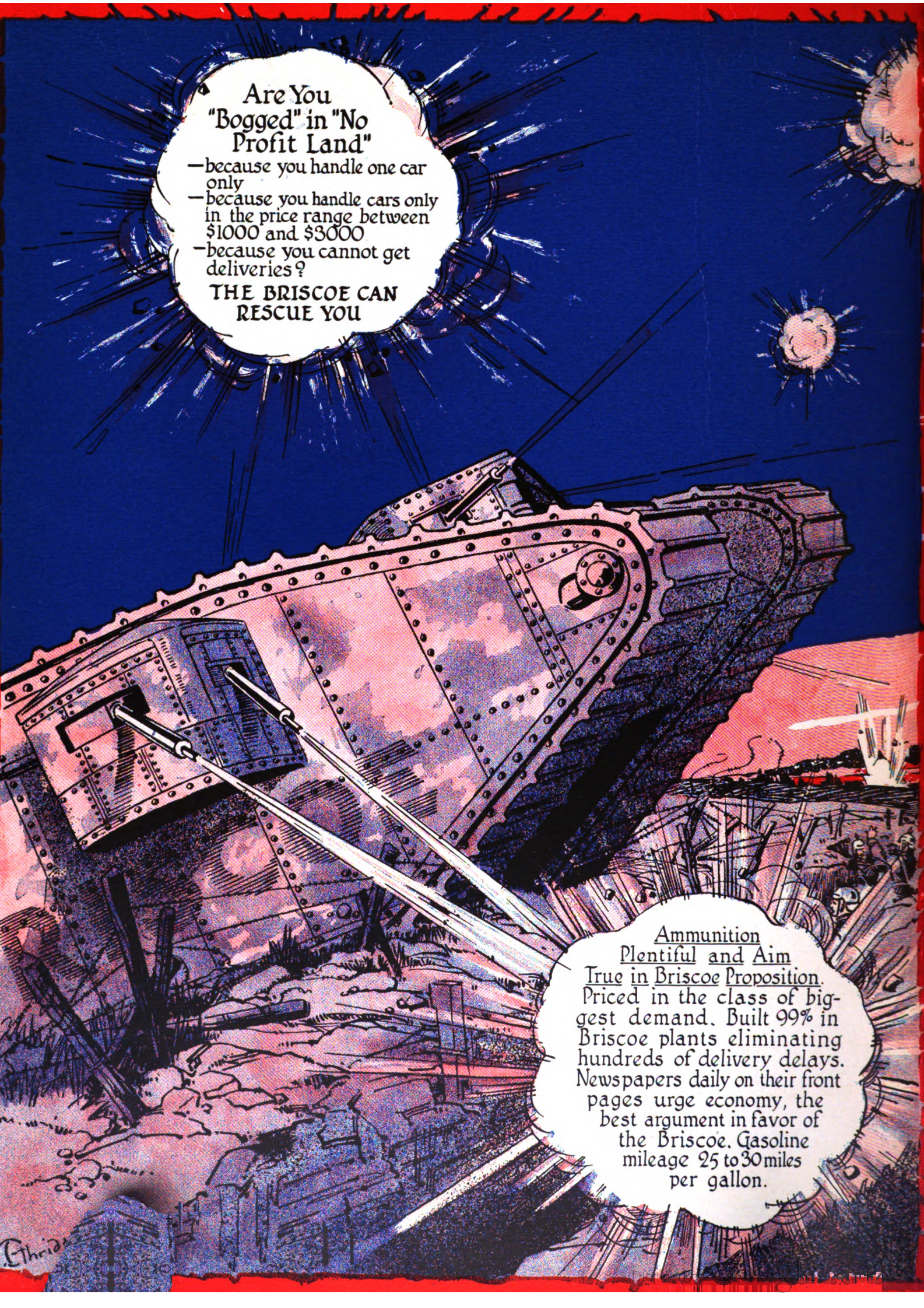
Conditions are changing. Old time proven selling ideas have been overthrown. New plans, rapid readjustments of interest to every dealer have been made necessary by the war.

HAVE YOUR SALES BEEN AFFECTED?

Have you been getting sufficient cars?
Has the freight situation bothered you?
Are you in the wrong price class?

Find your particular problem solved somewhere within the following 35 pages




Are You "Bogged" in "No Profit Land"
—because you handle one car only
—because you handle cars only in the price range between $1000 and $3000
—because you cannot get deliveries?
THE BRISCOE CAN RESCUE YOU
Ammunition Plentiful and Aim True in Briscoe Proposition. Priced in the class of biggest demand. Built 99% in Briscoe plants eliminating hundreds of delivery delays. Newspapers daily on their front pages urge economy, the best argument in favor of the Briscoe. Gasoline mileage 25 to 30 miles per gallon.

Are You Selling the *Right-Priced* Car Under Present Abnormal Conditions?

WHAT car am I going to handle in 1918? What car will be a sure seller and bring me the largest profit return?

You have undoubtedly been giving more thought to these questions in the last few months than you ever gave them before in your entire business career. You have had to because of changing conditions.

Under present conditions, the class of trade you have been selling may not continue to buy your price car *when it will buy Briscoes.* Seemingly every class—merchants, farmers, salesmen and men of wealth—are now buying cars in the Briscoe price class.

You know that the big dealers handling cars above $1,000 are now figuring on taking on a low-priced line. They are forced to do this in order to protect their overhead. You appreciate that possibly you cannot sell a lot of one and two thousand dollar cars right now—BUT YOU CAN SELL BRISCOES AT $725.

The big dealer—the prosperous dealer of next year is now laying foundation for success on the realization that *he must handle the car for which there exists the greatest number of buyers.*

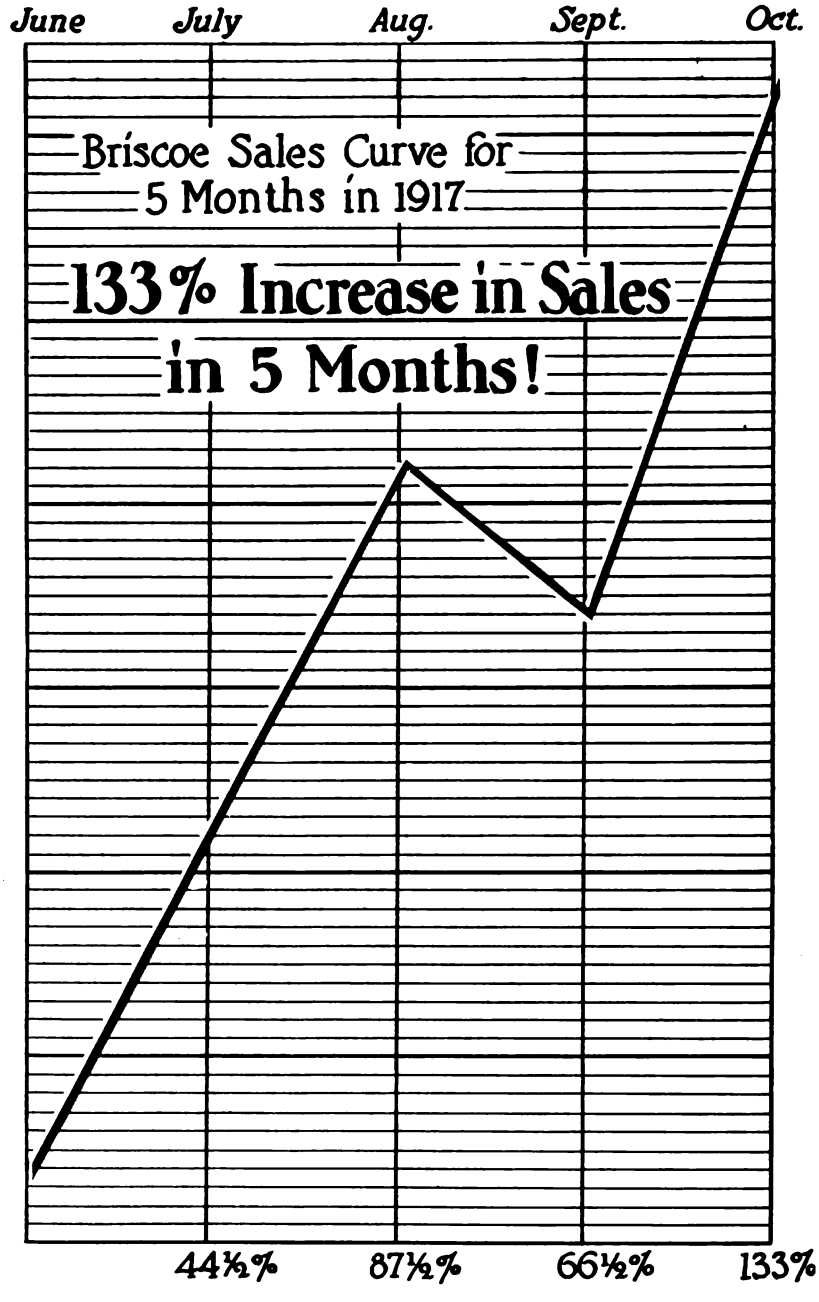
The time has arrived when a dealer must realize his present position in the automobile world depends upon meeting this PRESENT DEMAND. Not the demands of last year, but the buying demands of TODAY.

Regardless of your locality, or your present line, you can figure with a fair degree of accuracy that one man in thirty-five is a *good* Briscoe sales possibility.

One Briscoe dealer, in territory which was not even considered promising, sold in *ten weeks* the quota he had planned would last him 12 months!

His sales for October showed an increase of 25% over September. His territory has not been scratched.

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Did *Your* Sales Show an Increase During These 5 Months

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Sales of Briscoe Dealers Are *Increasing*, Not Decreasing

ANOTHER Briscoe dealer sold 1,200 cars in his territory—4 cars per day for each working day in the year! What these and a thousand other Briscoe dealers are doing you can do. Why?

You know that the business in medium and high-priced cars has been falling off under present abnormal conditions.

From 50% to 70% of the logical buyers in this class must conserve their resources, or will do so under present economy publicity or for patriotic reasons. They hesitate to spend from one to two thousand dollars, but they will spend from seven to eight hundred dollars. Briscoe sales records prove it.

You cannot get away from the fact that recent buying trends have been constantly downward toward the Briscoe price level. You realize that this trend has been sending the sales of Briscoe cars upward. And you can bank on it that every new demand for economy—in price and upkeep—will divert new streams of buyers in the Briscoe dealer's direction.

Every newspaper and magazine article on economy creates a direct selling influence for you.

Tens of thousands of potential buyers who formerly earned from $18 to $20 a week are now earning from $35 to $50 a week. Many of them are about to purchase their first car and will buy Briscoes.

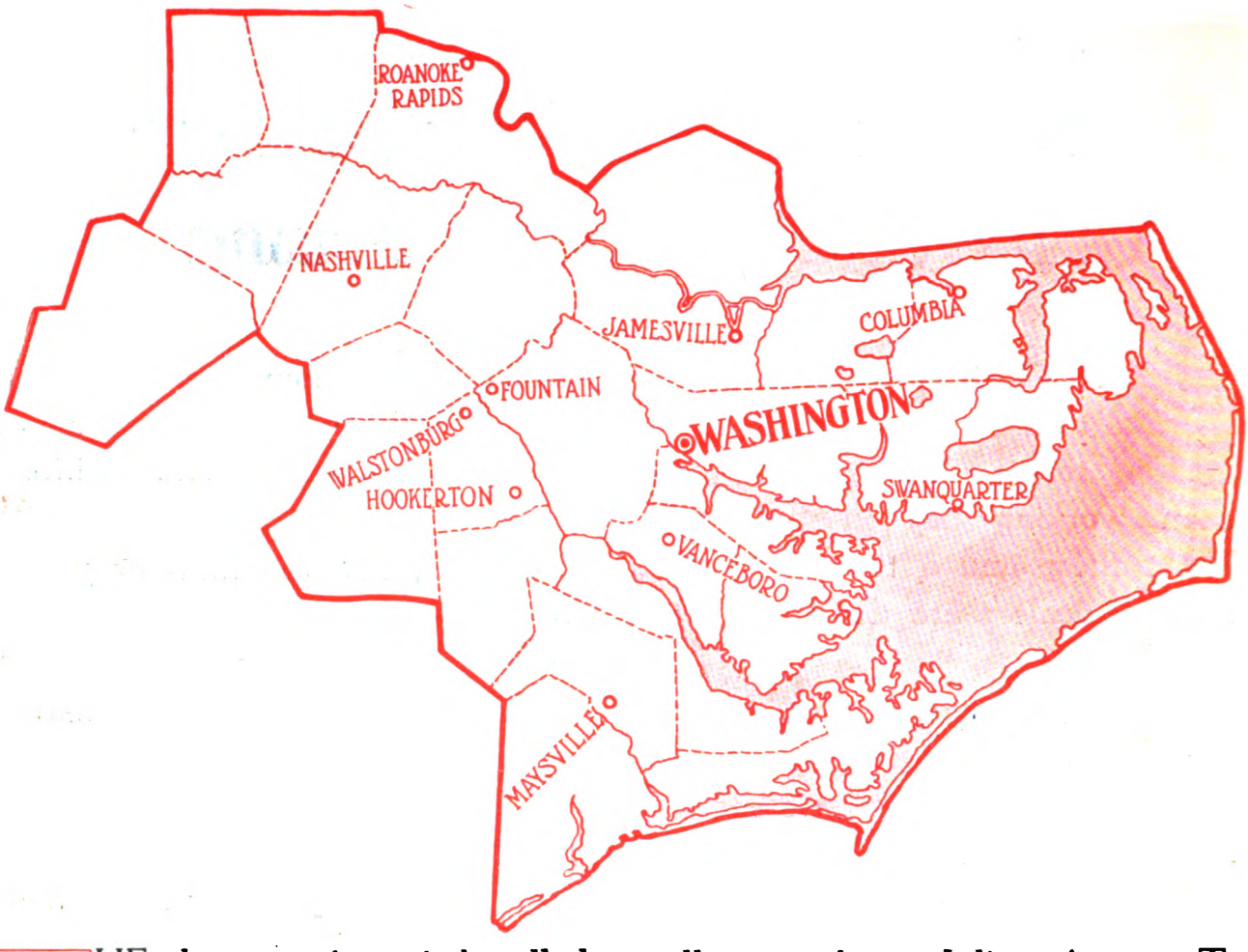
All classes—farmers, mechanics, salesmen, merchants, and men of wealth—are now buying this price car.

That is why Briscoe sales increased 133% in the five months ending October 31st. We believe this to be the biggest increase of any motor car company during the corresponding period.

The reasons back of this remarkable increase mean more to you and your business future than any recent development in the industry.

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THE CAR WITH THE HALF-



THE above territory is handled by George Hackney, Jr., Washington, N. Car. His record of sales is as follows:

July	5
August	15
September	20
October	40
November	65

The population of the territory shown is 511,478, and naturally, being so far south, is not comparable in wealth to many of our northern agricultural districts.

This probably doesn't break any world's records, but it is a good record and one that is profitable to a very satisfactory extent.

We could give a better record and tell you about Julius Anton, Trufant, Michigan, who, in a town of less than 400, sold 27 Briscoe cars this season.

The Briscoe statistical department has the record of each county in the United States and we can prove to you the salability of Briscoe cars in your own county, supported by the most complete records.

This statistical service, too, is always open free to you and you will find it will help you greatly in the conduct of your business.

Are you doing as well in your territory as Julius Anton or George Hackney did in theirs with the Briscoe?

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Every State, Every County, Every Community is *Full* of Briscoe Buyers

FIGURE for yourself what it is worth to you—as a wideawake dealer—to represent a car in the price class of the greatest buying activity.

Briscoe sales have increased 133% in the last five months. As a keen student of conditions, you must admit that the $725 price is right.

There is no question about the demand.

This means that there is not a live dealer in the United States who cannot sell Briscoes in 1918 and make big money.

It means that no matter where you are, how big or small you are, your locality represents a sales and profit mine that only needs to be opened.

The Briscoe, low-priced, economical and reliable, is an absolute utility necessity to merchants, contractors, farmers, doctors; in fact, is needed in almost every line of business activity.

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THE CAR WITH THE HALF-

If You Have Been Handling READ THESE

THE dealer who sells a medium or high-priced line *exclusively* in these times, and intends to "sit tight" to see what happens, is like the merchant who refuses to take out fire insurance on inflammable merchandise stored next door to a powder mill.

He is likely to wake up a big loser—after it is too late.

Right now we are "closing up" hundreds of dealers who would not have considered the Briscoe proposition six months back. They didn't need to then.

These dealers were formerly identified entirely with the one, two or three thousand dollar field. They were doing a highly satisfactory business in that field.

Then conditions changed. Briscoe cars met the changed conditions. Good merchandising sense is making good Briscoe dealers of these dealers.

These dealers had a fixed operating overhead, a good sales organization and realized that it was business suicide to retrench and practically break up the organization they had built.

But they didn't lay down and go out of business. Briscoe cars showed them the way out and, like good business men, they followed the Briscoe line of least resistance.

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A HIGHER PRICED Car TWO PAGES!

You can analyze all this very easily. The *goodness* of the car you now sell, providing its list is between $1000 and $3000, does not enter into the matter at all. It is the unfortunate price. It is the dwindling market. It is the spirit of thrift—of economy. It is patriotic NECESSITY.

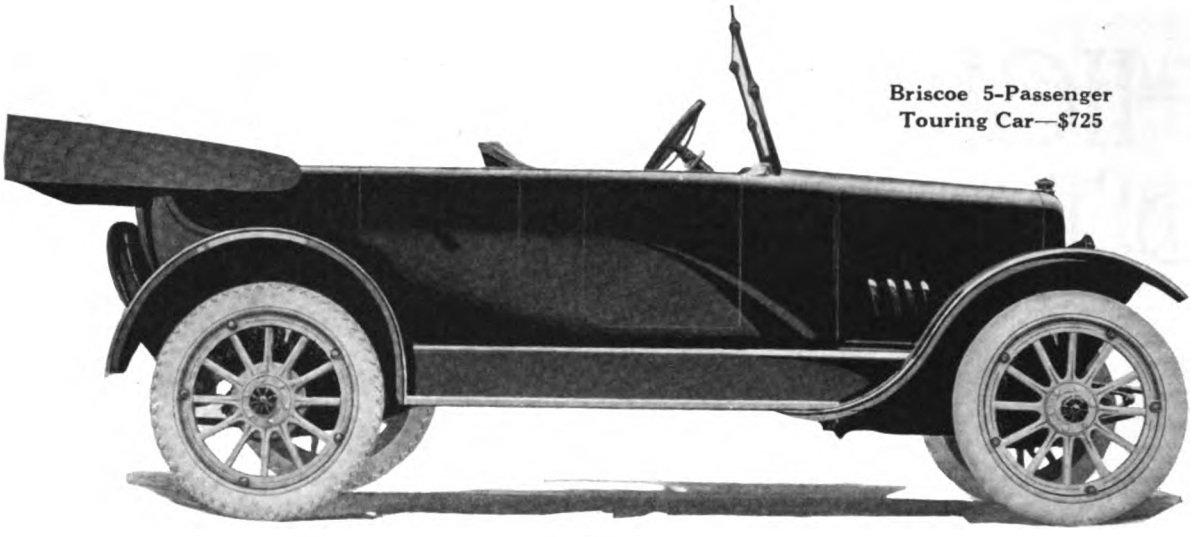
Possibly your resources are ample to continue in business until conditions adjust themselves.

Possibly a sense of loyalty will make you hesitate to add another car to your line. But we want to ask you one fair business question, if you are one of those dealers whose business on your present line has slowed up to a point of seriously affecting your income. WHEN YOU POSITIVELY KNOW THAT THE DEMAND FOR YOUR PRESENT LINE IS STEADILY DECREASING, WHY THEN SHOULD YOU HESITATE TO TAKE ON THE BRISCOE AGENCY WHEN YOU POSITIVELY KNOW THAT THE DEMAND FOR A $725 CAR IS GROWING DAILY UNDER WAR CONDITIONS?

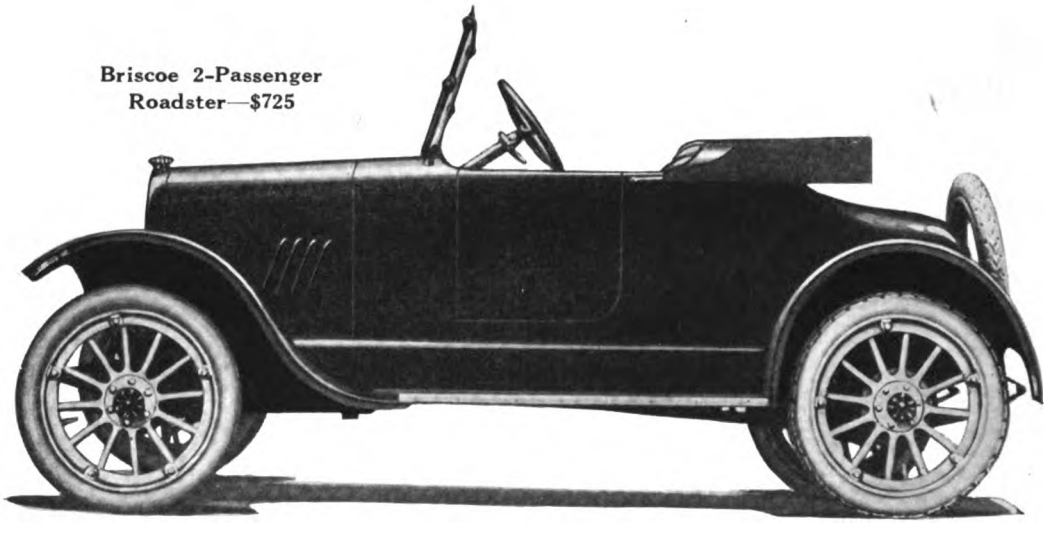
With the Briscoe you make new friends in a new buying zone—good desirable connections that may in time be in the market for your higher-priced cars. You add an asset that will turn a decreasing, unprofitable business into a hustling, busy money-maker that will be a tonic to yourself, your organization and your bank account.

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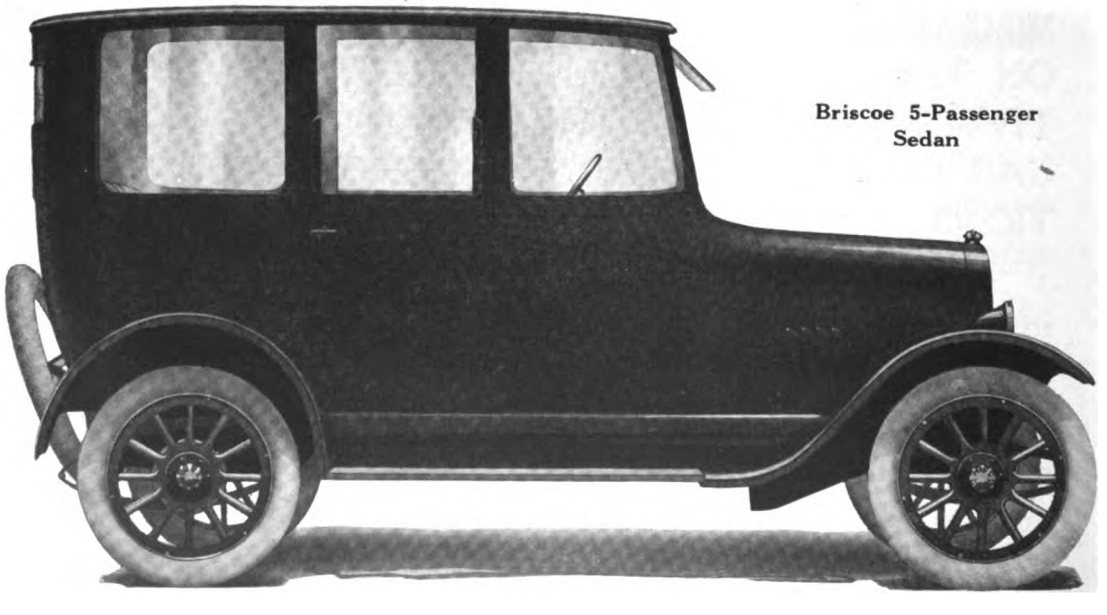
THE CAR WITH THE HALF-



Briscoe 5-Passenger
Touring Car—$725



Briscoe 2-Passenger
Roadster—$725



Briscoe 5-Passenger
Sedan

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The Briscoe Car is *Right*—In Price, In Construction, In Economy and In Appearance

NOW, how about the car itself? Absolutely—without a shadow of doubt and with all of the emphasis possible, let us say—THE CAR IS RIGHT.

We have concentrated on this model for two years and —WE KNOW IT'S RIGHT—our dealers know it's right—the reason they sell so many of them.

Men who did not know, and who would not believe until shown, tried to break it up on heart breaking grinds; tried to make it falter on steep hills and tried it in sand and mud.

We proved ourselves in Billy Sunday's class when it came to converting unbelievers.

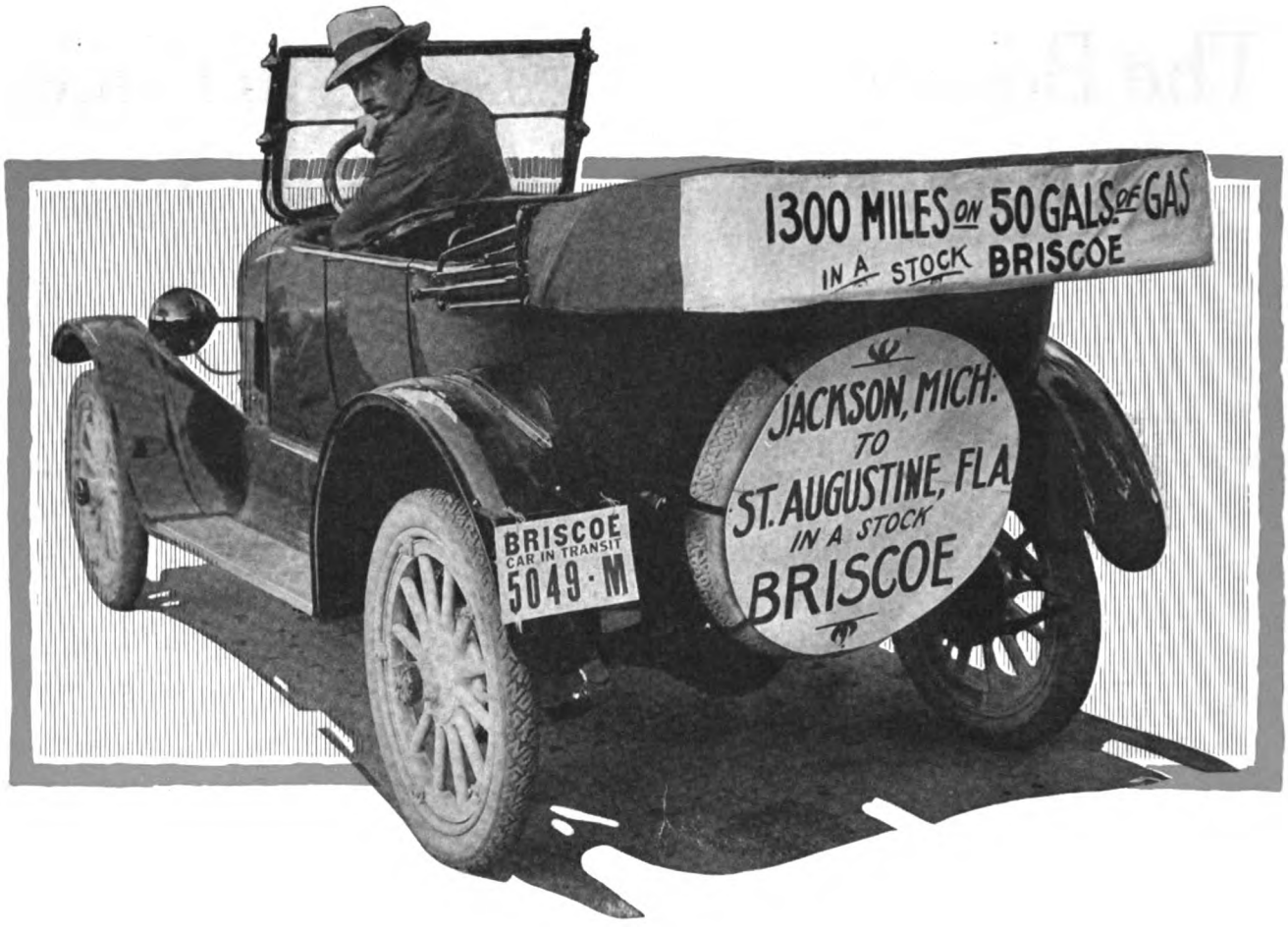
All of our models are built on one chassis.

Our engineers are satisfied with the basic features of this car. So are we. It's the best car we ever built and we are not going to change it.

You will sell more cars in 1918 if you handle it, than you will if you don't.

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THE CAR WITH THE HALF-



Amazing Briscoe Record Run Carries Vital Dealer Message

THIRTEEN hundred miles on 50 gallons of gas! It's a record to be proud of—yet nothing out of the ordinary for the car with the Half Million Dollar Motor.

Driving a *brand new* Briscoe, taken from stock, Charles F. Hopkins, Jr., covered the 1300 miles between Jackson, Mich., and St. Augustine, Florida, on 50 gallons of ordinary gasoline—an average of 26 miles to the gallon. This achievement is proof of Briscoe economy claims. Here is low cost motoring proof that makes the Briscoe quick to sell. Almost every Briscoe dealer has furnished us with economy records equally remarkable.

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Briscoe *Record-Breaking* Economy Creates Volume Sales for You

ECONOMY is the watchword of the hour. It's on everybody's tongue. The papers are full of it. No one knows better than you as an automobile dealer what a big part this one word plays in the sale of a car. If you cannot prove economy, when demonstrating a car, you know your chances for closing your prospect are mighty slim.

Economy is one of the biggest things you have to sell in the Briscoe car. With it you have an edge on competition. You have something that has been demonstrated and that you can positively demonstrate any time.

With buyers exacting greater and greater fuel mileage every day, a car of uncertain economy has no place on your sales floor. It is a handicap that your shrewdest salesmanship and hardest work cannot overcome.

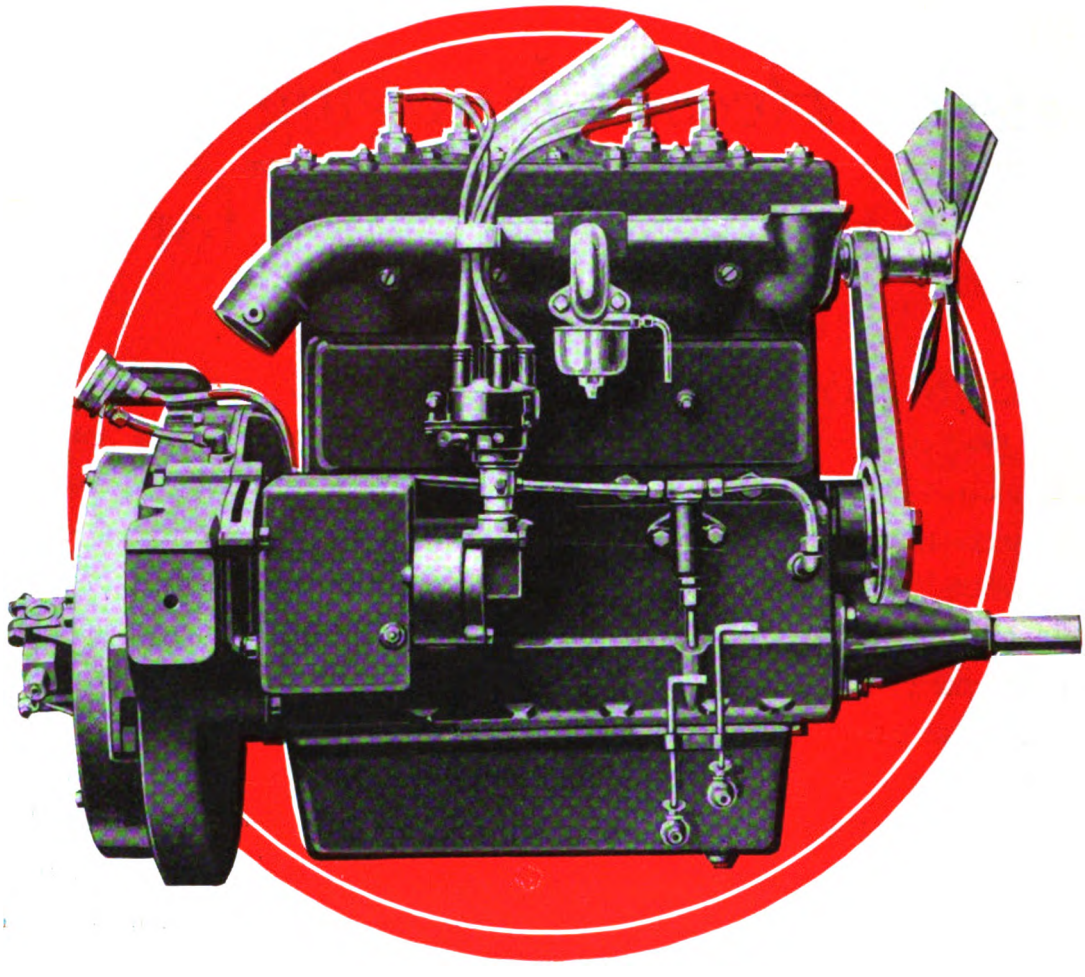
You must sell a car that the man of moderate means can afford to buy—and operate—a car which men will buy as a matter of principle. *Small upkeep is the big concern of the present-day buyer.* If you handle the Briscoe you know you are selling a car of big gasoline mileage, big tire mileage and big oil mileage. You can know that every customer will be a satisfied customer—a booster not only for Briscoe but for you.

Economy is 25% of your sales foundation. With Briscoe you can satisfy all buyers—the city man as well as the farmer who travels over rough roads on long drives and who is anxious to make every dollar count. Remember the Half-Million Dollar Motor was designed in France, where gasoline was 50 cents a gallon.

Constantly increasing Briscoe business everywhere is ushering in this new era—the era of economy.

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THE CAR WITH THE HALF-



ECONOMY NOT NEW TO BRISCOE

ECONOMY has *always* been one of the best selling points of a Briscoe car. The Briscoe Half-Million Dollar Motor was designed and built in Paris to operate *economically* at a time when fuel in France was 50 cents a gallon! If gasoline here cost twice what it does today, the man of moderate means could continue to run and operate a Briscoe—and Briscoe dealers would keep right on selling them.

Twenty-five to thirty miles per gallon of gasoline can be expected by Briscoe owners.

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The Half-Million-Dollar Motor Works *Every Day* To Increase Your Sales

TAKE your prospect to the steepest, longest hill you can find and the famous Briscoe Half Million Dollar Motor will take you "Over the Top" in a way that will make him enthusiastic. You can outsell any car in your class, and above it, on power alone. Then you can duplicate the performance on economy. You have everything a buyer can ask—economy—power—flexibility—the ability to throttle down to low speed instantly and "built-in" adaptability to present day low grade fuels.

Numerous manufacturing details, carefully watched, and religiously adhered to, make these things possible.

For example:

After assembling, the Briscoe motor is lapped in on a line shaft. It is then taken to a block test and run under its own power, after which each bearing and piston is pulled and examined and the compression tested. It is next taken to a silent room, where every noise is detected and eliminated.

Think of a motor in a $725 car being given an individual test and examination in a silent room!

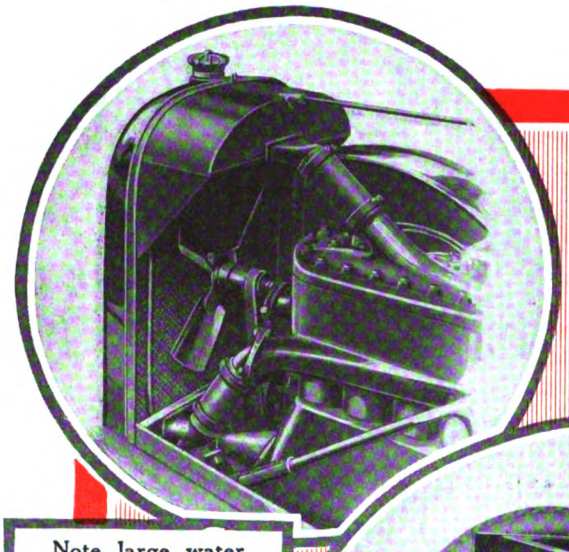
Bearings are heavy bronze backed and lined with anti-friction white metal. We have three ring pistons ground, grooved and drilled for oil. Our I-beam connection rods are chrome vanadium and heat treated.

The Briscoe crankshaft is rotary and statically balanced; rotary balanced means balanced standing still; statically balanced means balanced at high speed which, in the Briscoe, means balanced at 2,000 R. P. M.

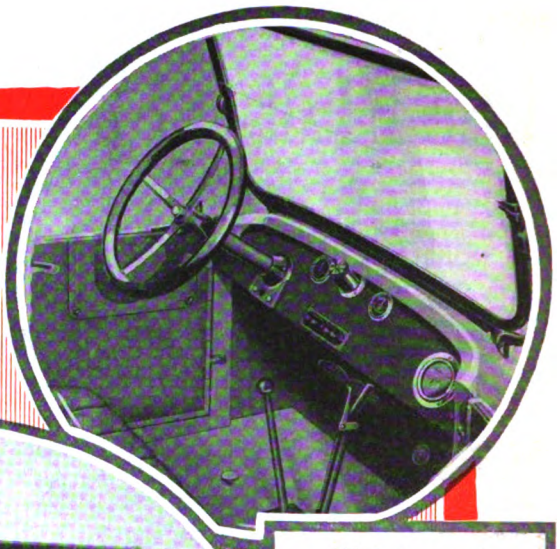
You will find the Briscoe motor is the best salesman on your floor. It will make sales for you every day in the week.

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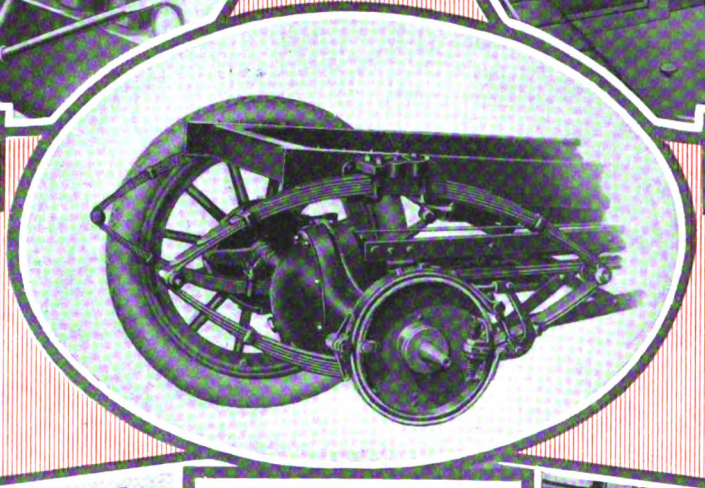
THE CAR WITH THE HALF-



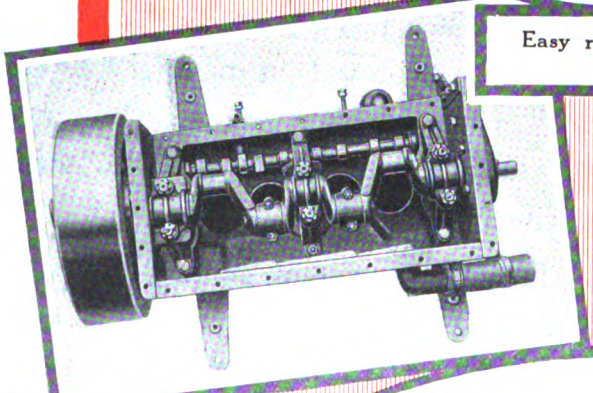
Note large water supply tank and passages

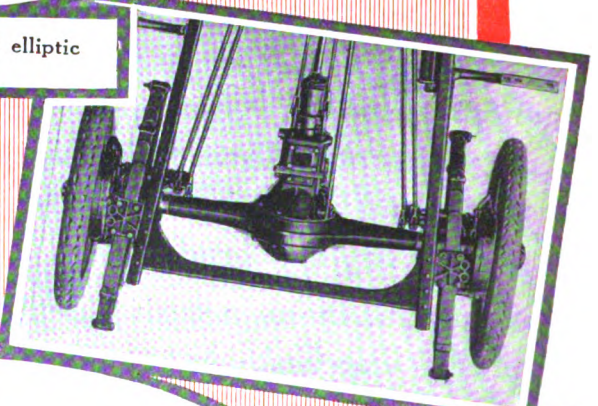


All instruments within easy reach



Easy riding full elliptic springs





Balanced crankshaft, extra heavy

Reinforced rear axle; electrically welded



Large doors, ample room

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Every Briscoe Constructional Feature Is a *Sales* Feature

CONCLUSIVE selling points stick out of the Briscoe car like bristles on a porcupine. Your easiest prospects will be those who know most about motor cars.

You have a Thermo-Syphon Cooling system with large inlet and outlet pipes going to the cylinders from the radiator permitting a large volume of water to circulate through the specially deep cored radiator and insuring perfect cooling.

You have over-strength axles, analyzed, forged, heat-treated and tested exclusively for Briscoe cars and Briscoe service in Briscoe factories. The rear axle is of the semi-floating type equipped throughout with Hyatt heavy duty roller bearings. At the end of the shaft which supports the wheel we have a 4-inch bearing, the differential being mounted on two 1½-inch bearings with ball and thrust. The front axle is of the reversed Eliott type of nickel steel, heat treated. This type, we believe, will stand more strain and wear on rough roads than any other.

You have a worm and gear type of steering with bronze bushed eccentric bearing container that makes driving certain and easy.

You have full elliptic springs front and rear, oil heat treated and oiled by oil cup instead of by grease cup. These make the Briscoe the easiest riding car of its class.

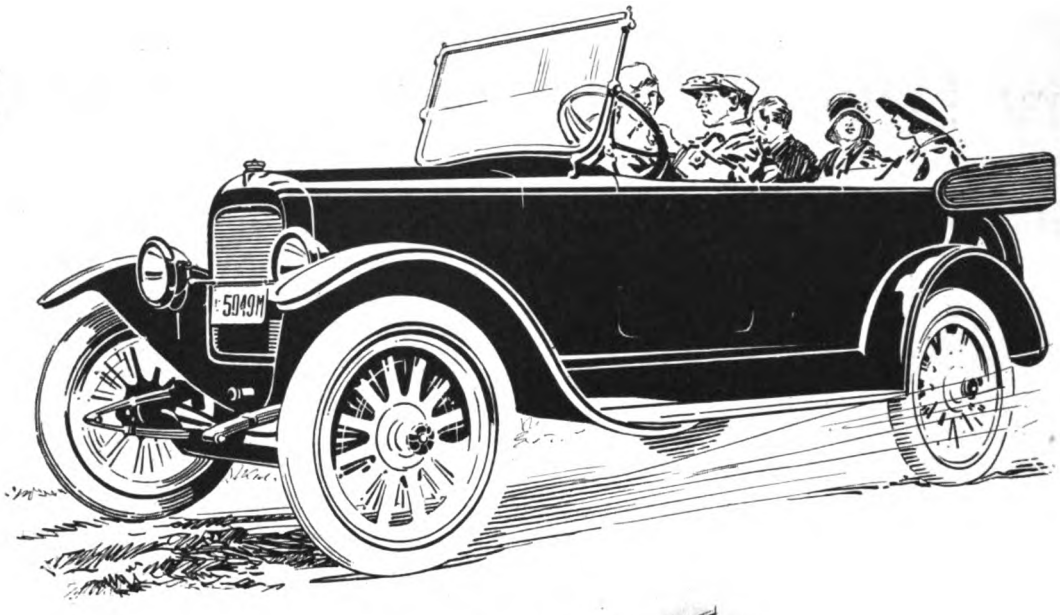
You have a one-piece cam shaft with cams forged integral on the shaft.

You have brakes on the rear wheel, both internal expanding and external contracting, that are absolutely certain in every crisis.

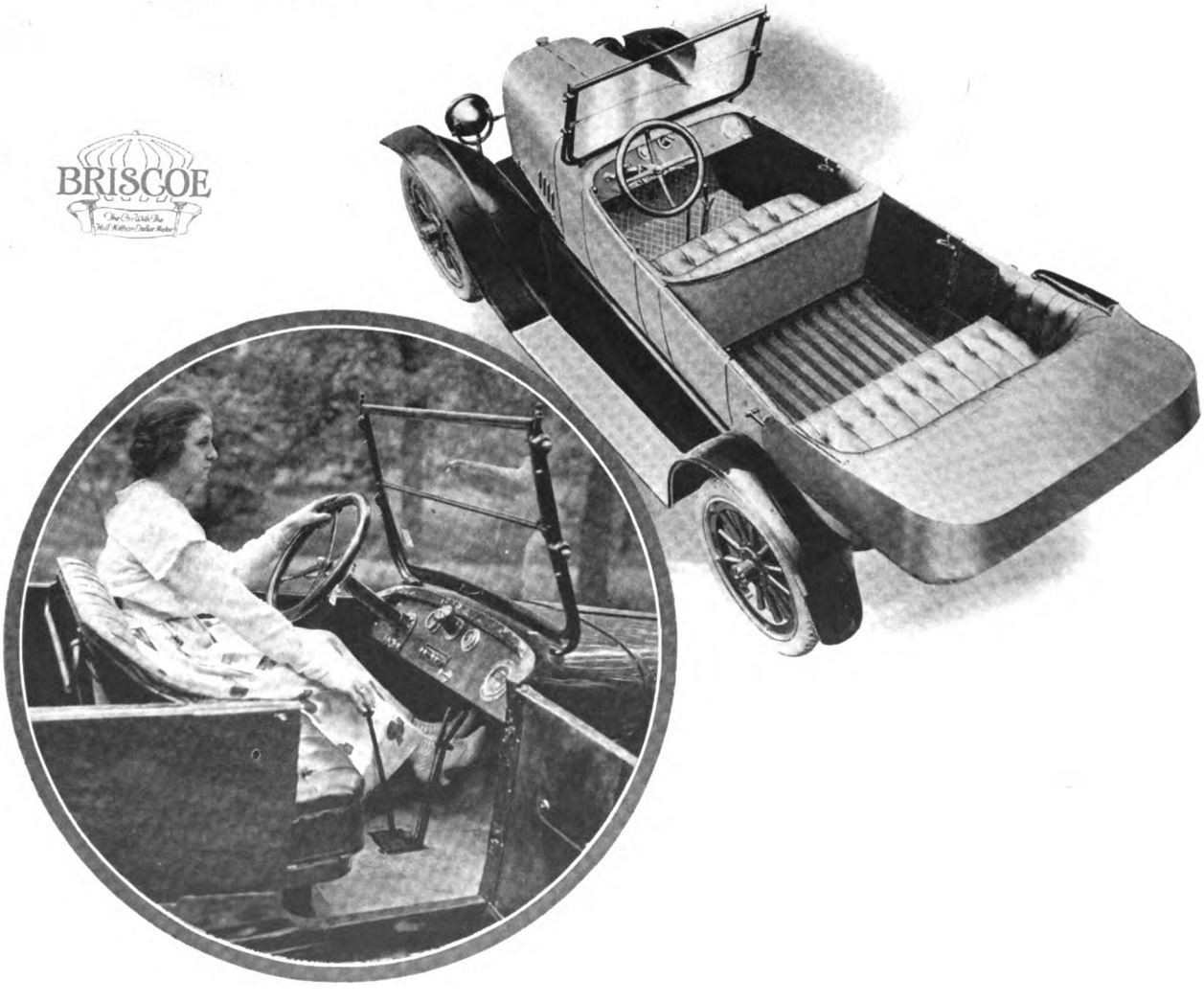
You have leg and body room—front compartment and rear—that makes a big man a cinch to sell. You have his order if you can get him in the car.

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THE CAR WITH THE HALF-



BRISCOE



Buyers *Now* Demand Distinctive Appearance, Easy Riding and Feminine Appeal at Briscoe Prices

YOU can add to every other Briscoe advantage the two important requirements of *appearance* and *comfort* as selling features. In the Briscoe you have a car with equal lines of any car, regardless of price.

You have the only low-priced car finished in more than one color—green body, black fenders and cream wheels. There is no monotony here. Other low-priced cars are usually painted funereal black.

You have the roomiest and easiest riding car in its own class, superior in these qualities to many higher priced cars. You have the finest upholstery of any car near the price.

You have a car whose appearance, comfort and ease of operation appeals to everyone, and particularly to the woman driver at a time when more women are driving cars than ever before.

You can check every one of these Briscoe features as an exclusive selling advantage.

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THE CAR WITH THE HALF-

Sept. 24, 1917.

Briscoe Motor Corporation,
Jackson, Michigan

Gentlemen:—

My car has been driven 1500 miles and has averaged 25 to 30 miles on a gallon of gasoline.

It is a wonderful hill climber, as demonstrated by climbing all hills on high in the Lake Geneva region.

Please consider me a satisfied owner and an ardent booster for Briscoe.

Very truly yours,
THOMAS J. SULLIVAN, M.D.
Chicago, Ill.

August 30, 1917.

Briscoe Motor Corporation,
Jackson, Michigan

Gentlemen:—

Yes, we had a great trip in West Florida, but the little Briscoe proved herself capable of any and all emergencies.

When I tell you that we made over 600 miles, because of washout, etc., and that the car never missed a stroke during this entire trip, you can form some conception of its wonderful performance.

S. C. MIDDLETON,
St. Augustine, Fla.

Sept. 15, 1917.

Briscoe Motor Corporation,
Jackson, Michigan

Gentlemen: I have had my Briscoe seven months and like it better every day.

Have not had five cents' worth of repairs on the engine.

The carbon has not been cleaned, although I have driven it over 6000 miles, and not afraid of any hills or mud.

Recently I drove 169 miles and in six hours did not have it out of high gear despite very bad roads and hills.

I am a proud Briscoe owner.

F. E. KARG,
R.F.D. No. 2, Poland, Ohio.

November 1, 1917.

Briscoe Sales Company,
Amarillo, Texas

Gentlemen: Have just completed a trip of 1040 miles in my new Briscoe.

Am pleased to state that I was only out 38 gallons of gasoline, and 1½ gallons of oil on the trip. You will note the gas consumption averaged 27½ miles per gallon, and very rough roads a great deal of the way.

I have made as high as 32 miles per gallon on good roads.

Yours truly,
G. C. ELDER,
Amarillo, Texas

Briscoe Motor Corporation,
Jackson, Michigan

Gentlemen: I drove from my home in McAlester to Hartshome and used but 5 quarts of gasoline. I consider this an extraordinary record for gas consumption on rough country roads, as almost the entire trip was over dirt or shaled roads where there are many hills.

This record of 30 miles on one gallon of gas is one that I am proud of and I do not believe it could be duplicated with any car on the market except the Briscoe.

Sincerely yours,
W. D. DENTY,
McAlester, Okla.

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Letters of This Kind Pave the Way to Easy Sales

IN addition to the selling value of the Briscoe car itself—its Half Million Dollar Motor with its wonderful power and economy, its exclusive constructional features, its lines, its 3-color finish, its roominess, you can count on the selling support of every Briscoe user in your locality.

You will find that the best salesmen working for you will be satisfied Briscoe users.

The user who gets 32 miles from a gallon of gasoline—"This is a positive fact and we know of no other car that even approaches this record."

The user who gets 1700 miles to the gallon of oil—

The user who never had her out of high for 6 hours over bad roads and steep hills—

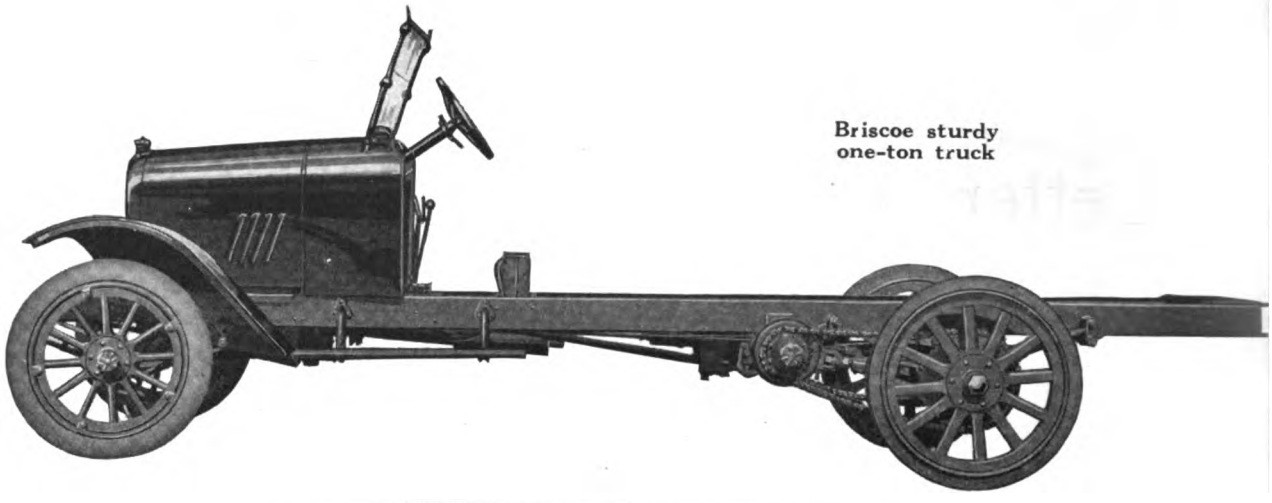
The user who never spent a nickel for repairs in 7 months—

The user who gets miles of extra service from his tires—

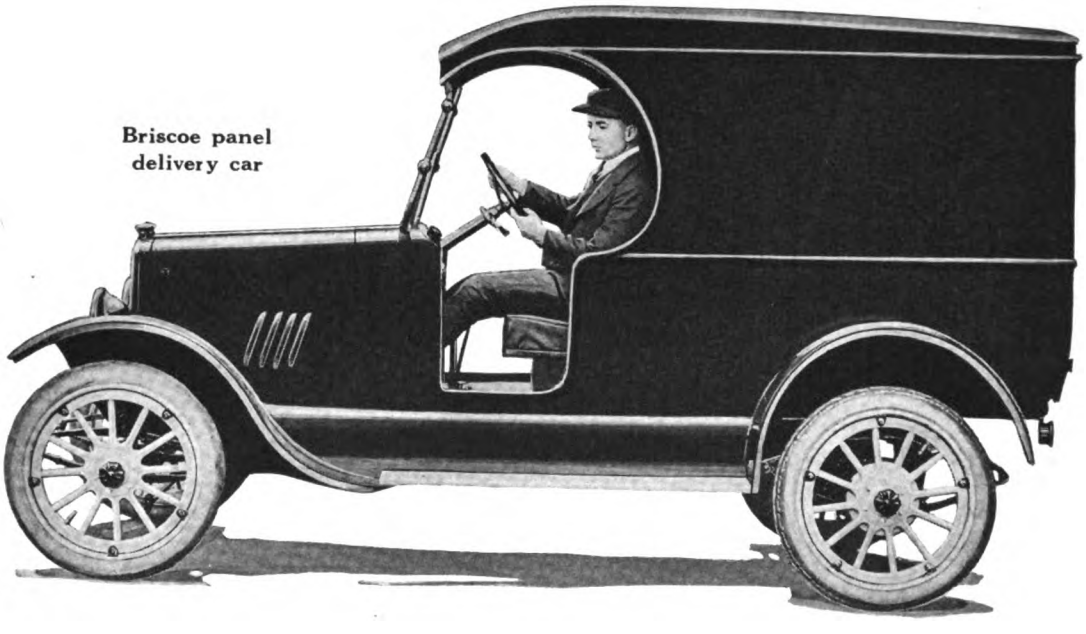
Read the letters on the opposite page. Isn't this something to think about? Isn't it worth considerable to handle cars your customers can talk about like this voluntarily?

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THE CAR WITH THE HALF-

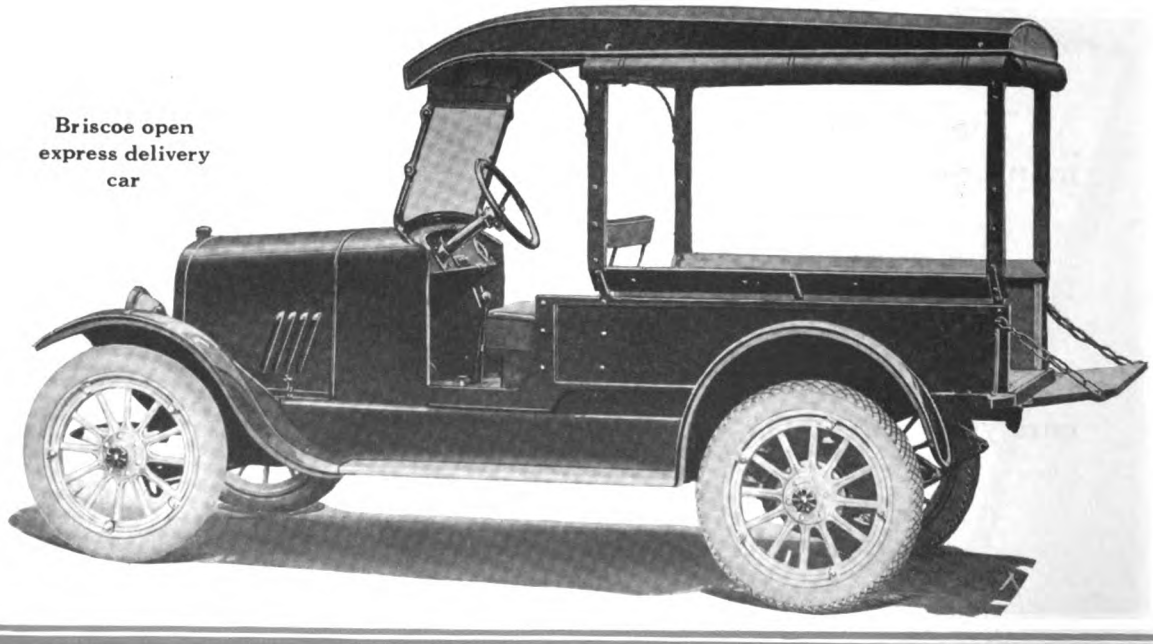


Briscoe sturdy one-ton truck



Briscoe panel delivery car

All Models Electrically Started and Electrically Lighted



Briscoe open express delivery car

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This Is the Day of Motorized Business—the Era of Trucks

HERE again, Briscoe adds money to your bank account. You know that today almost every line of business needs trucks—and is buying them.

Over night the Truck Industry has been revolutionized. Conservation of labor and conservation of food—have almoft totally eliminated horse haulage and at the same time created for you one of the biggest opportunities of the last ten years.

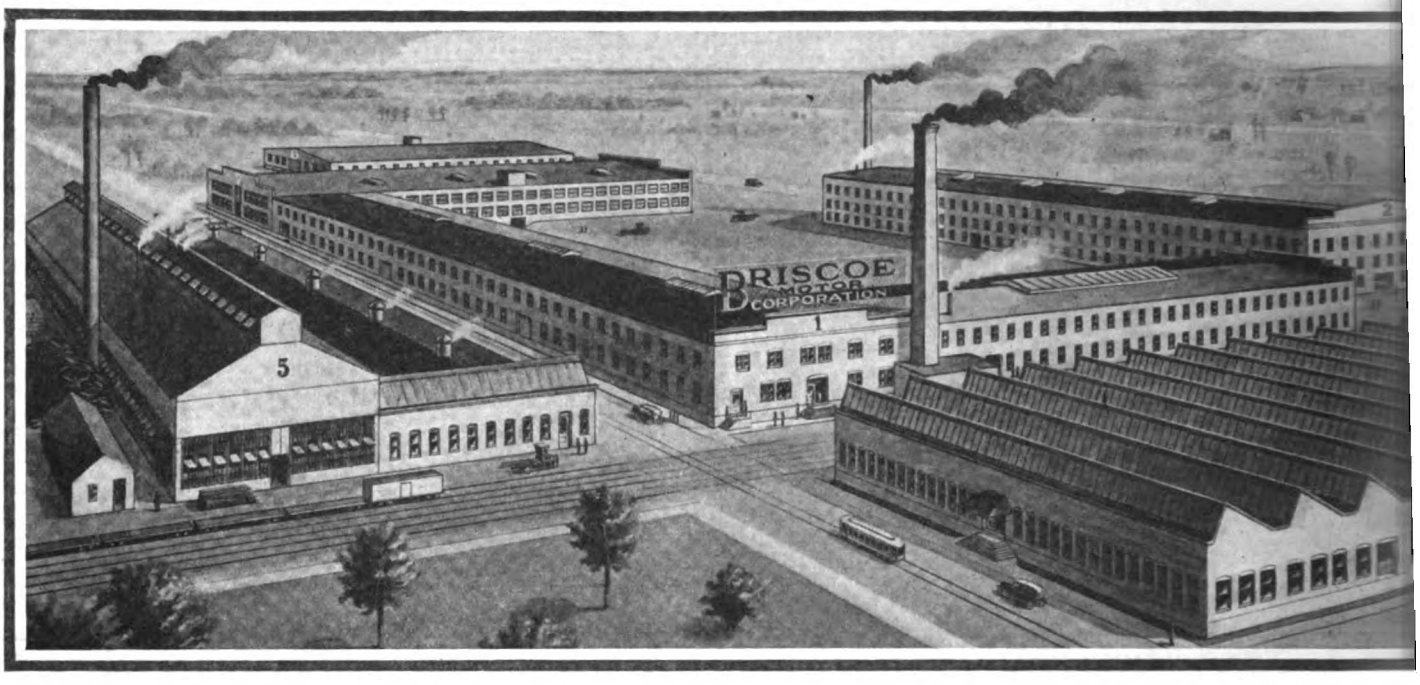
And here again you find Briscoe Trucks in the right price and capacity class—the field where the most sales await you. There is a tremendous demand for these Trucks, especially since they embody features like the self-starter—the very latest development in truck practice.

Fully 95% of the truck prospects in small towns and farming communities are Briscoe prospects.

You can sell the Briscoe Light Delivery Car at $725 and the Briscoe 1-Ton Truck at $1000 anywhere.

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THE CAR WITH THE HALF-



What 99% Factory

THE ten great Briscoe factories covering 43 acres of ground are ten big, throbbing hearts of intelligent, intensive industry, working at the speed of quality workmanship to create 99% of the Briscoe car from raw materials.

The wise automobile dealer who is building a permanent business wants this kind of an organization back of him.

This is why:

The Briscoe factories can control quality in a way that is physically impossible for a firm that buys finished parts from 200 or more firms in widely scattered parts of the country.

If you picture for a moment what buying from scores of factories located North, East, West and South means, you can easily see how the chances for a "Fall down" must multiply under present uncertain conditions.

Dealers need not be told the importance of 99% factory built in the one item of service. Nearly everyone has had bitter experience with orphan cars. We will always be able to furnish parts for our car, no matter what model, because in Plant 1, not fifty feet from the general offices, we have all of the tools, dies, etc. Quite a difference between having everything under our finger and having tools and dies scattered in 100 towns with no one particularly interested in their condition or continued existence, such as is the case with many assembled cars you know.

We own our own grounds. We own every building you see above. We own our own machinery. We are going to build Briscoe cars in sufficient quantities in 1918 so that every Briscoe dealer will get enough to make a nice profit.

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Built Means to You

Our engineers perfect an improvement. It is incorporated in the Briscoe car in four days' time. If we depended upon parts from the outside, we would either have to junk thousands of dollars' worth of material, or wait until the end of the season to give you the improvement. You know which of these things the assembling factory does.

A 99% factory built car means an extra 25% in the value of the car. It means that you get a better car for less money—because profits that would otherwise go to parts makers stay in the car.

For instance:

Everything that goes into the Famous Half Million Dollar motor, except spark plugs, is made right here. This means that we make our own crank shafts, cam shafts and connecting rods—something that hardly any automobile manufacturer does. We want to take you through Plant 10 some time and show you the big scale upon which we do this work. Many of the factories claiming to make their own motors buy these parts and assemble them. Briscoe, in every case, goes back to the raw materials.

Every Briscoe frame is made right here in Plant 4. They are hot riveted to prevent rattling and pulling apart.

We forge our own gear blanks in Plant 5 and cut, heat treat and grind every one of them. Many factories who make a talking point of their gear cutting buy their blanks. Our transmission gears are run in with ground glass to make them noiseless, this being another of those Briscoe manufacturing niceties that is paid for in the extra satisfaction when in the hands of the owner.

Let this point sink in:

There is an exacting inspection made of every part of a Briscoe car after every operation in its manufacture.

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THE CAR WITH THE HALF-



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Factory Efficiency Enables You to Sell *Better* Cars at *Lower* Prices

EVERY piece of metal that goes into Briscoe cars passes under the analysis of our chemical laboratory in Plant No. 1. Not a single piece, no matter how small, is allowed to pass inspection if it does not contain just the proper alloy. The owner is thus assured, and the dealer can guarantee, a car honestly and faithfully built, because we insist upon an extra care that in most cars is not considered necessary.

Our axles are forged in our own mammoth forges, where great steel hammers pound bar steel into the shapes that, after going to the heat-treating department, to the machine called the bull-dozer for stretching, and through other operations, becomes the finished product. It is here in Plant 5 that the visitor dodges myriads of white hot sparks, walks mincingly past great vats of boiling oil and gets a breath of the nether regions as he hastens past sizzling furnaces that seem to breathe. Then when he starts for the next plant he says, "My, I never imagined you had anything like that here!"

It is at Plant 9 that the chain conveyor assembling line makes cars while you wait. Also Briscoe tops are made there and upholstery that is a little better than is usually put into cars of the $1000 class is done. Painting is also applied here —and the paint is not sprayed on. After being leaded, rubbed and sanded, Briscoe bodies are painted and varnished by hand.

If you are the kind of a dealer who can build success with the Briscoe you will demand—particularly now in the face of war conditions—a machine manufactured from the ground up—a 99% factory built car—a BRISCOE.

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THE CAR WITH THE HALF-



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You Benefit from Every Modern Method for *Getting* and *Holding* Business

JUST the minute you join the Briscoe family every facility at the command of the great Briscoe organization is placed at your disposal. You can bank on the fact that we will not shout and promise co-operation and leave performance at zero. You can absolutely rely on constructive selling help of the kind that takes off its coat, buckles in and really does things.

Instead of telling you that a half million dollars will be spent in advertising, and then falling down on the promise, you can know positively that every cent will be spent that will be needed to move the product. Factory dollars are joined with your own to advertise Briscoe in your own home town.

Field sales supervisors are at your command. These trained men will come into your territory, analyze your selling problems and offer a solution if necessary. They will create selling campaigns, stimulate your organization and give you the advantage of the best ideas of other dealers in all parts of the country.

Searching information upon your own problems in your own territory will be furnished you by our statistical department, if you ask for it.

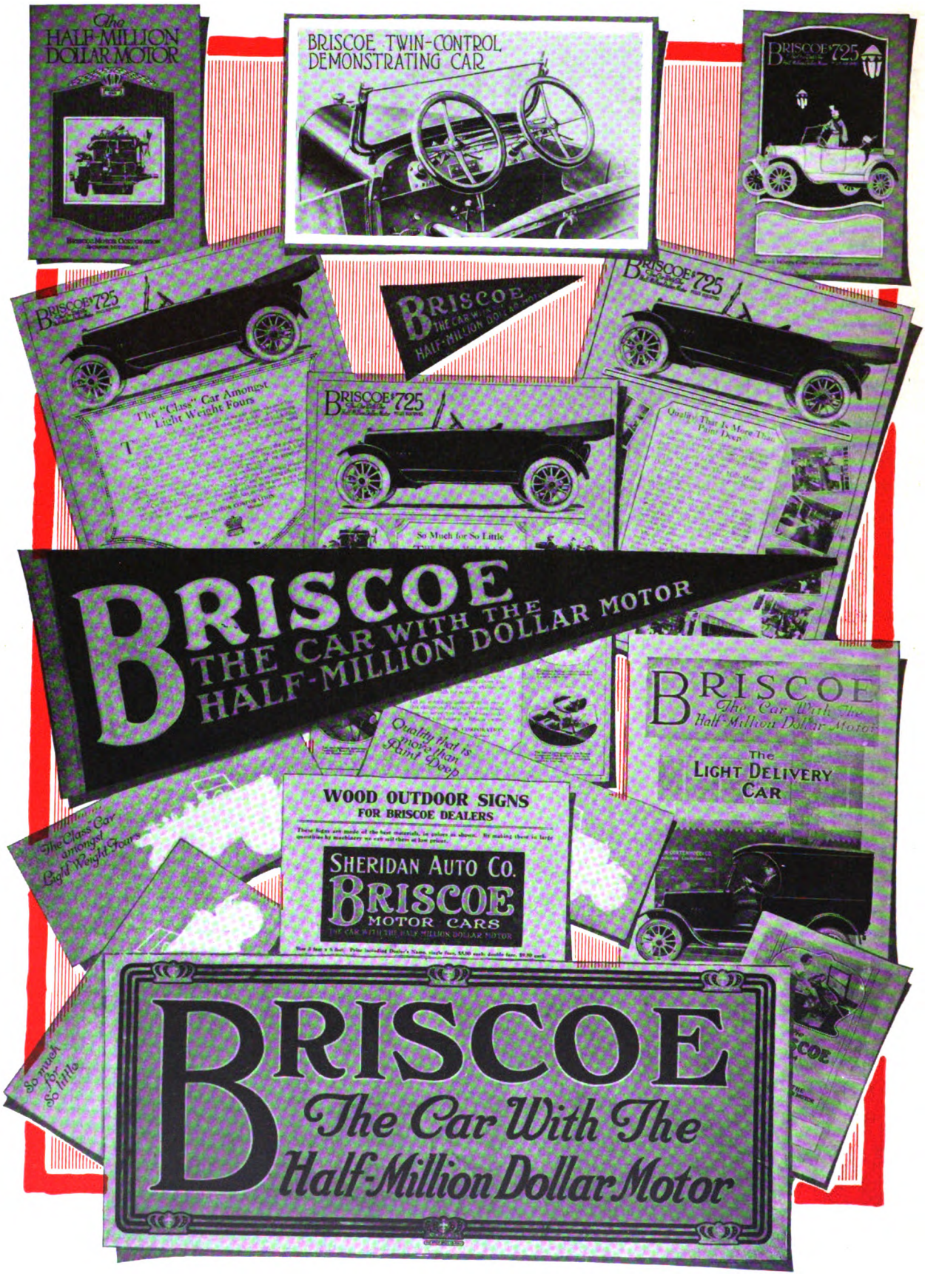
Perhaps you think you know exactly what the sales possibilities are in your own home town. Perhaps you do, but just to protect yourself ask our statistical department to give you all data in their possession.

Anything you want to know can be quickly and accurately answered. This service alone should be the means of more sales for you.

No matter where you are located you cannot help but feel the effect and enjoy the advantages of Briscoe publicity, actual help given by Briscoe field supervisors and information available through the Briscoe statistical department.

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THE CAR WITH THE HALF-



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Briscoe Sales Plans Help You Get *All* the Business in Your Territory

YOU will be unusually interested in the two plans we have to help you stock Briscoe cars, one for carrying Briscoe cars on your own sales floor—the other for carrying cars in our Jackson warehouse.

You have, in addition, the advantage of several retail plans, which arrange for carrying your time sales to customers over any reasonable length of time. Examples of a few of these plans follow. You will readily see how they assist you in getting every possible bit of business out of your territory. You will find they fit your every need.

You will quickly recognize the many advantages of our Briscoe dealers' Floor Plan, or Stock Plan No. 1, which provides for storing cars on your own floor.

You know that there exists at times a shortage of freight cars. You know that many dealers have had to drive cars away from the factory to get them—at great inconvenience, and considerable extra expense.

This floor plan enables you to make shipments from time to time when it is possible to get the cars, and provides for storing them on your own sales floor, always available for quick delivery to your customers.

You lose no sales through failure to make immediate delivery. You make many an extra sale whenever there is a good spell of weather in the winter or early spring. You never bother about whether you can get cars. You have always got them, or know where you *can* get them. The arrangements under this plan are very liberal, as the following example will show you:

STOCK PLAN NO. 1

BRISCOE DEALERS' FLOOR PLAN

Example for Class "A" Dealers

Your net price	**$622.00**
You send with order 15% of the net price	**93.30**
Also 3% of $528.70 (the deferred payment), to cover fire and theft insurance and bond	**15.86**
War Tax	**20.00**
	$129.16

Therefore, you send us $129.16 cash remittance for each car ordered. This sum to accompany your order when mailed into the factory.

When cars are shipped, notes for the deferred payment are attached to the Bill of Lading. These notes mature in four months and bear interest at 6% per annum, and are computed at $528.70 per car.

When the Bill of Lading with the notes attached arrives at your bank, you are notified and upon going there and signing the notes, the Bill of Lading is turned over to you and you obtain possession of the car.

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Your *Cash Balance* Benefits from these

UNDER Stock Plan No. 2, or the Jackson Warehouse Plan, we store cars for you in our Jackson Warehouse subject to your shipping orders as you find room for them on your sales floor. You always know you have cars waiting for you in the warehouse when you want them. And you know *how many* cars you have to draw on. You experience no delay or disappointment through being unable at rush seasons to get cars direct from the factory. This plan does not cost so much per car as Plan No. 1. Consequently, you can stock more cars, but you will have to run the risk of freight car shortage.

STOCK PLAN NO. 2

JACKSON WAREHOUSE PLAN

Winter Plan for Cars Purchased by Dealer and Placed in Bonded Warehouse in Jackson

PLAN "A"

Your prepayment	**$50.00**
Item to cover insurance, handling, collection and warehouse charges	**12.00**
War Tax	**20.00**
	$82.00

You send cash remittance amounting to $82.00 for each car ordered. The class "A" dealer's net price is $622.00.

When warehouse order has been accepted, notes for the balance due on car—viz. $572.00, is sent to you through your bank. Attached to this note is the warehouse receipt covering the car. The note bears interest at 6% per annum and matures April 15th, next.

You sign the note and endorse the warehouse receipt, both being returned to the company at Jackson.

The cars are kept in bonded warehouse in Jackson during the winter and are shipped out not later than April 15th. At the time of shipment, the notes which you have signed accompany the Bill of Lading.

Of equally great selling help to you are the Briscoe Deferred Payment Plans, every one of which assures you full protection as well as full list price on every car you sell. Among these are—(1) the *Briscoe Special Deferred Payment Plan* with Fire, Theft and COLLISION Insurance; (2) the *Briscoe Deferred Payment Plan* with Fire, and Theft Insurance only, and (3) the *Briscoe Agricultural Deferred Payment Plan.* There are several optional variations in the time limits of each of these plans over any reasonable length of time. We explain all these variations in a special booklet which will be gladly sent you on request.

Most important of these for increasing your winter business and quickening dragging sales is the Briscoe Special Deferred Payment Plan, which is the only deferred payment plan which protects both you and the car buyer with COLLISION insurance in addition to fire and theft insurance. It is better for you to sell cars under this plan when possible, because, although it costs a little more, it prevents arguments with your customers regarding repair bills and it protects your collateral.

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Stock and Deferred Payment Plans

The plan you will use most, however, is Fire and Theft only, an example of which is given below:

BRISCOE DEFERRED PAYMENT PLAN

List price of Briscoe	$725.00
Freight from factory (estimated)	20.00
Selling price	$745.00
War tax (estimated)	20.00
3% of $745.00 (selling price) for fire and theft insurance for 80% of list price of car for one year	22.35
TOTAL COST OF CAR TO CUSTOMER	$787.35
Customer pays you cash 1/3 of $745.00 (selling price)	$248.33
Customer pays you cash for War Tax	20.00
Customer pays you cash 3% of $745.00 (selling price) for fire and theft insurance for 80% of the list price of the car for one year	22.35
TOTAL CASH PAYMENT BY CUSTOMER	$290.68
Customer executes eight notes bearing interest: one note for $62.11 and seven notes for $62.08 each	$496.67
TOTAL PAYMENT BY CUSTOMER	$787.35
The Insurance Company purchases these notes and pays cash	$447.00
And a deferred certificate for 10% bearing interest at the same rate as the notes and payable when all of the notes are paid	49.67
	$496.67
You sold car for	$784.75
You received cash from customer	$290.68
You received cash from Insurance Company	447.00
You received Deferred Certificate from the Insurance Company	49.67
	$787.35

In agricultural communities where farmers are accustomed to giving implement notes payable after crops are marketed, you have the advantage of the Briscoe Agricultural Deferred Payment Plan. Such a plan will greatly increase your sales to farmers. This plan fully described in a special booklet which is yours for the asking.

You know that with almost every commodity sold on a deferred payment plan, the *time price* to the buyer is always longer than the *cash price.* The burden of this is on the purchaser.

Here is where you have a big advantage with Briscoe Deferred Payment Plans. *The Briscoe time price is the same as the Briscoe cash price.* The buyer is not penalized—that makes your sales easier. The insurance company assumes the entire burden. Briscoe sales plans are operated in connection with the Mercantile Trust Co. of Chicago.

It is unnecessary to point out the advantages these plans give you over competition in your territory. You can see they put you in position to get every sale possible —at full list price and with complete protection.

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Get Away from the Field of Shattered Profits

YOU have listened to us, in spirit, as we have told the Briscoe story in cold printers' ink.

The sparkle that comes into our eye, the enthusiasm that bubbles unrestrained when we tell you this story face to face, are absent.

You've read the proofs without the warmth and smile of personal contact.

You admit with us that the Briscoe is in the price class most active at this time. The logic is simply irresistible that it will help increase your profit balance at the end of the year.

WHAT ARE YOU GOING TO DO ABOUT IT?

How much territory would you like to have?

How many cars can you handle?

What machine are you now selling?

How soon could you start?

For you to profit we must get together. There are three ways for you to take advantage of this active Briscoe market.

You can grab a train and come to Jackson.

We can send to you one of our special representatives.

You can see the Briscoe itself and many of the men behind it at our exhibit on the main floor, center aisle, at both the New York and Chicago automobile shows.

Write us fully today and let us know the method you want to pursue in negotiating further.

BRISCOE MOTOR CORPORATION

107 LE ROY STREET, JACKSON, MICHIGAN

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The Briscoe "Big Push" is starting now. Will you volunteer or must we draft you ?
Briscoe business has increased 133% in the last five months. HAS YOURS?

BRISCOE MODELS AND PRICES

Subject to Change Without Notice

5-Passenger Touring Car . . .	$725
2-Passenger Runabout	725
5-Passenger Coachaire	850
Delivery Car (CANOPY TOP BODY)	725
Delivery Car (PANEL BODY)	750
Sedan, 5-Passenger	
1-Ton Truck	1000

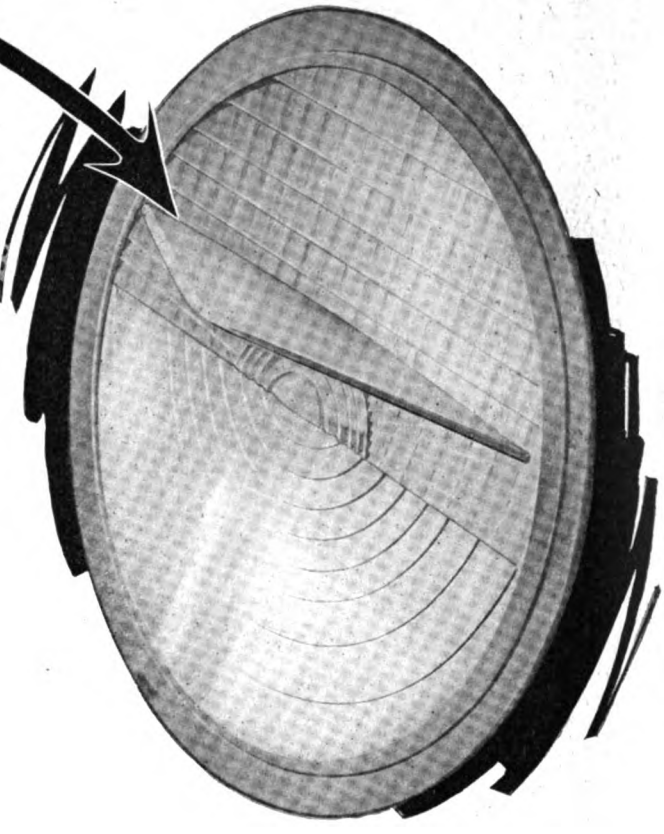
ALL PRICES F. O. B. JACKSON, MICHIGAN

Briscoe Motor Corporation

Jackson, Michigan



The Fin That Put The Finish to Glare!



The minute a motorist lays eyes on the Holophane Lens he must realize that it is radically better than *any* other he has ever seen. For in this lens he finds something more than *theory*—something tangible—something he can see and feel: the Holophane Fin, which puts a positive shield between the lamp in which it is used and the eye of the approaching motorist, making possible for the first time really *glareless, bright* illumination of the road.

Dealers: Holophane Lenses not only sell themselves, but they actually *create* business for you by enabling you to displace many of the hundreds of thousands of unsatisfactory lenses which motorists have bought.

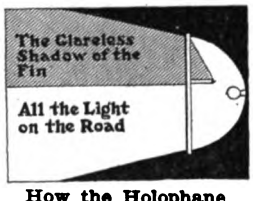
Your customers rely on you to offer them the best. Don't injure your prestige by letting them see this obviously better lens on other cars only to realize that they had no chance to buy it in *your* store. Write today for our complete proposition and trial order offer.

Size of Lens	Per Pair—U.S.	Canada
7 to 8¾"	$2.75	$3.30
8⅞ to 9⅝"	3.50	4.20
9¾ to 10¼"	4.00	4.80

West of Mississippi add 25c per pair

HOLOPHANE
SYSTEM OF ILLUMINATION

Every Motorist Must See At A Glance That This Lens Is Better



How the Holophane Fin Acts

Holophane Glass Company,
[illegible] Madison Ave.,
New York.....
Send me information about your dealer proposition and trial order offer.
Name .....
Address .....

HOLOPHANE



THE LENS WITH THE FIN

HOLOPHANE GLASS CO.
340 Madison Ave., New York

LOOK FOR HOLOPHANE AT
New York Show SPACE 228 4th FLOOR

When writing advertisers please mention Motor World—it identifies you

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Announcing McQUAY-NORRIS Supercyl used RINGS

REG. U.S. PAT. OFF.

FOR ENGINES THAT



A special ring for a special purpose—the control of excess oil. Designed for stubborn cases of oil pumping in motors, the cause of fouled spark plugs, heavy carbon deposits and smoking exhausts—to say nothing of excessive oil consumption.

Many modern automobile motors that operate with high vacuum and low compression develop an oil flow far in excess of any amount their designers planned to have piston rings control. It became necessary to devise a special oil ring for these motors and the McQuay-Norris Supercyl is the result of our engineering work along this line.

McQuay-Norris Supercyl Rings are concentric rings with an Oil Reservoir which collects all of the excess oil from the cylinder wall on the down stroke of the piston. Just the film necessary for lubrication is left on the wall.

The position and shape of this Oil Reservoir is the exclusive



Is Your Engine an Oil Gusher ?





Manufactured by

McQuay-Norris Manufacturing Co.

ST. LOUIS, U. S. A.

BRANCH OFFICES:

New York, Chicago, Philadelphia
Pittsburgh, San Francisco, Los Angeles
Seattle, Kansas City, St. Paul
Atlanta, Dallas

CANADIAN FACTORY

W. H. Banfield & Sons, Ltd., 372 Pape Ave., Toronto

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McQUAY-NORRIS with LEAK-PROOF PISTON RINGS

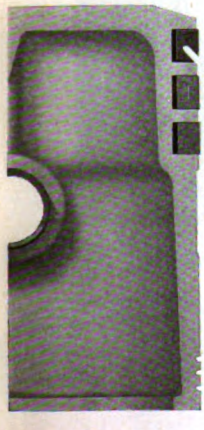
ARE OIL PUMPERS



McQuay-Norris Supercyl design. It is not a mere groove in the face of the ring. Note its position in the cross-section illustration.

One Supercyl Ring should be installed in the top groove of each piston of motors that are oil pumpers, with complete McQuay-Norris LEAK-PROOF Ring equipment in the lower grooves to insure maximum compression and utmost fuel economy. McQuay-Norris Supercyl Rings will hold compression as well as it is possible for any one-piece, concentric ring to do, but only with the McQuay-Norris LEAK-PROOF design is maximum compression, power and economy possible.

McQuay-Norris Supercyl Rings are made of the same enduringly elastic material and finished with the same exactness as McQuay-Norris LEAK-PROOF Piston Rings. Knowing the McQuay-Norris standard you can accept Supercyl with every confidence in its efficiency.



McQuay-Norris Supercyl Rings can be obtained in all sizes and over-sizes through your jobbers or supply house. We have arranged to distribute full assortments of sizes throughout the country.

Put McQuay Norris experience, organization and service to work for you. It will help build up the confidence of your customers—increase your business opportunities, and add handsomely to your profits.

SEND FOR FREE BOOKLET

"To Have and to Hold Power" a simple but valuable little publication on piston ring practice. Every garage and repair man should read it. Write Dept. K.



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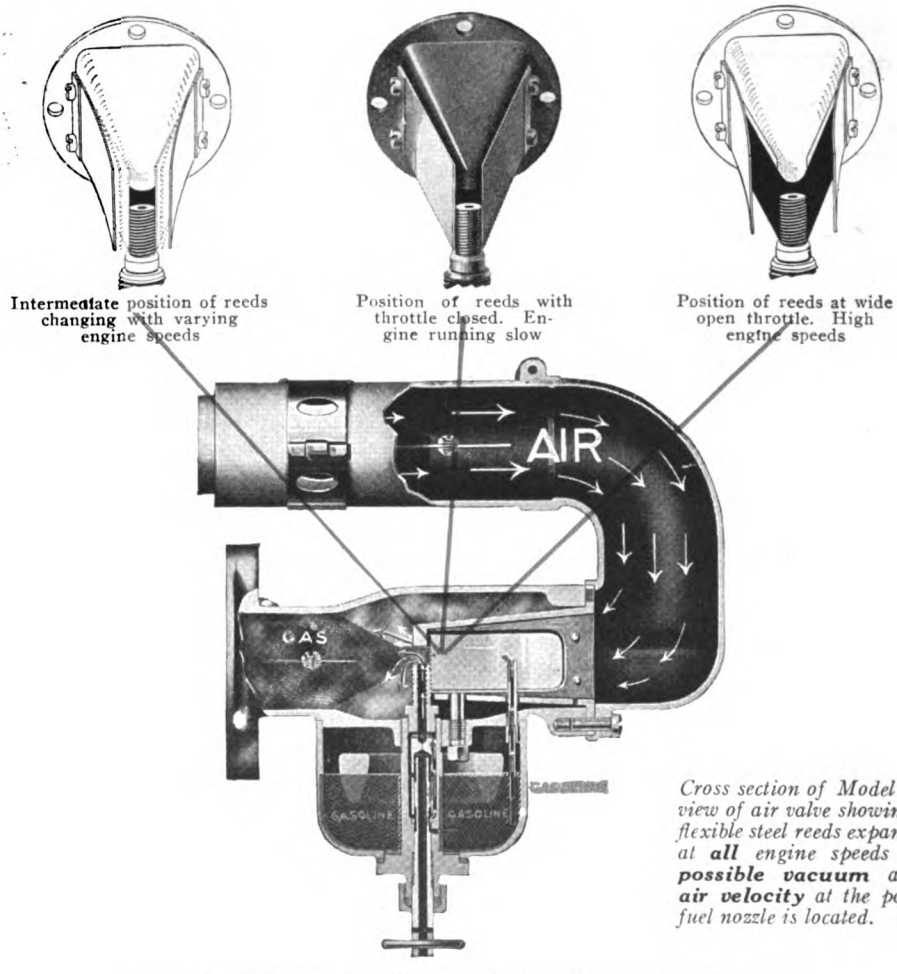
Tillotson
CARBURETOR

ENGINEERS and manufacturers of motor cars and motor trucks who are familiar with the Tillotson design of carburetor know that for downright dependability and all-around efficiency it cannot be excelled.

Over 300,000 are in use today!

Tillotsons are giving carburetor satisfaction to owners of cars of varying power, size and weight. Each model is specially designed and built for the particular type of car it is to serve.

Let us figure on your requirements for the coming year.



Intermediate position of reeds changing with varying engine speeds

Position of reeds with throttle closed. Engine running slow

Position of reeds at wide open throttle. High engine speeds

Cross section of Model B, with front view of air valve showing how the two flexible steel reeds expand to maintain at ***all*** *engine speeds the* ***highest possible vacuum*** *and* ***greatest air velocity*** *at the point where the fuel nozzle is located.*

The Tillotson Manufacturing Company
Toledo, Ohio

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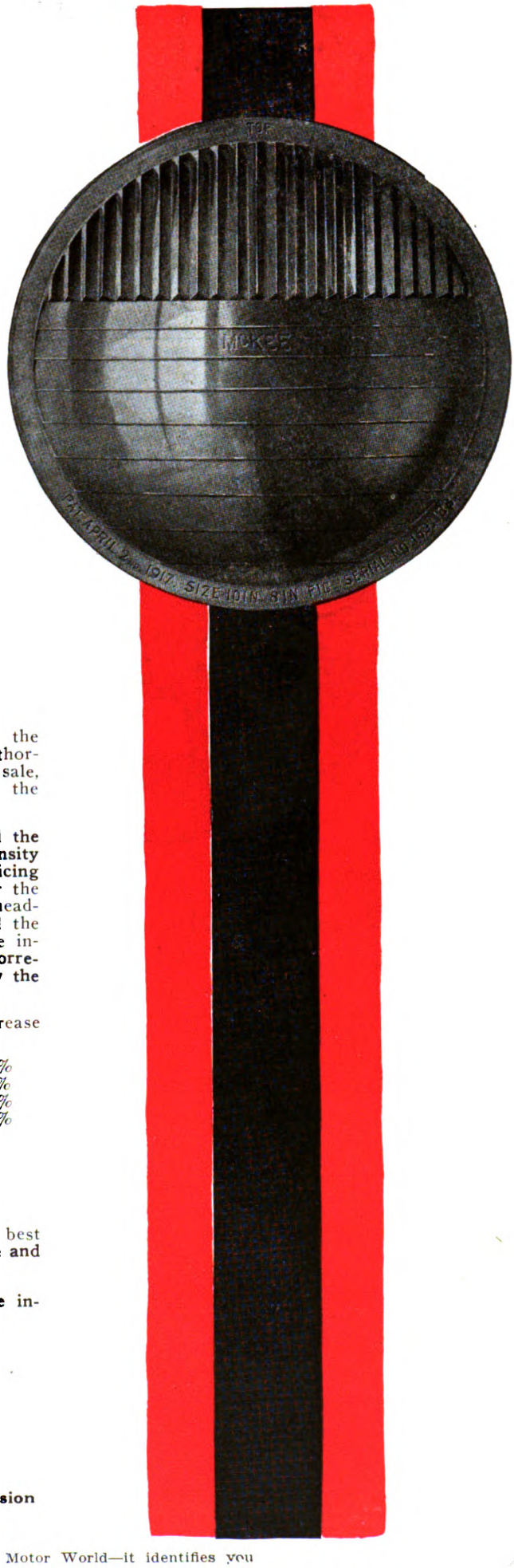
Official Tests

prove the Superiority of the

McKEE

STANDARD AUTOMOBILE HEADLIGHT

LENS



Automotive Engineers Report Greater Reduction of Glare, Combined with More Light on the Road

One of the largest Motor Car Manufacturing Companies in the United States recently had their Engineering Department thoroughly test out all of the principal headlight lenses now on sale, with results that proved beyond question the superiority of the McKee Lens.

The Official Report on these tests states: "Bearing in mind the **purpose of the non-glare device, which is to decrease the intensity of the rays of light above the axis of the lamp without sacrificing the intensity on and below the axis,** we would not consider the following devices as desirable (then follow the names of 5 headlight lenses) because these devices are simply diffusers and the candlepower readings show that although they decrease the intensity of light above the axis of the lamp, **they make a corresponding decrease in the intensity of the light in and below the axis."**

The remaining six lenses were found to reduce glare and increase or decrease usable light as follows:

No. 1 reduced the glare 85%, reduced the usable light 48%
No. 2 reduced the glare 85%, reduced the usable light 18%
No. 3 reduced the glare 80%, reduced the usable light 0%
No. 4 reduced the glare 50%, increased the usable light 25%

The McKee Lens Reduced the Glare 87%,
Increased the Usable Light 35%

This proves that of all these lenses, including the principal and best known makes now on the market, **the McKee gave less glare** and **more light on the road.**

And these two things are exactly what headlight lenses are intended to accomplish!

Built on the correct lens principle—concave-convex shape.

Dealers and Jobbers get our discounts.

Capacity, 15,000 pairs daily.

THE Mc KEE GLASS CO.

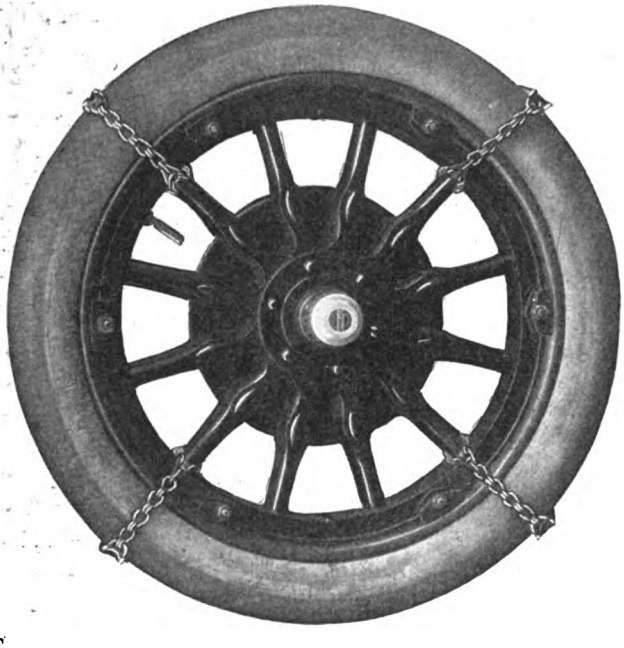
Jeannette, Pa., U. S. A. **Department C, Lens Division**

Branches in all the large cities

Digitized by Google

You Need These—Because They Mean More Business and Greater Profits

The Woodworth Easyon Chains and the Woodworth Easyon Solid Tire Grips make an instant appeal to the good sense of the motorist, and virtually sell themselves.



Woodworth Easyon Chains

Grip Like Mud Hooks
Ride Like Bare Tires

Are designed to be conveniently carried by the motorist and then to be quickly and easily put in place when he finds his back wheels spinning in the mud or snow or in any slippery place.
They take up scarcely any room.
They are applied in a few moments.
They provide perfect traction.
They are so designed that they cannot scratch the wheels or harm the tires.
They are made in three sizes—to fit any car.
They are packed 8 in a bag—4 for each wheel. Made also for solid tires—single and dual. They are low in price.

Chicago Distributors
Geo. B. Carpenter & Company
436 Wells Street

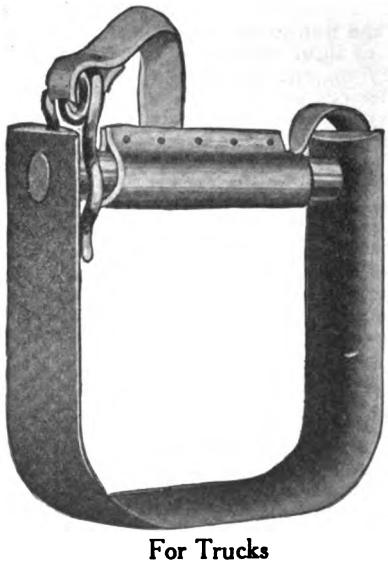
New York City Distributors
Rose Auto Supply Co.
1765 Broadway

Easyon Solid Tire Grip

Takes a powerful hold on the road; does not injure the tire or the roadway; it is practically unbreakable and causes no bumping on pavements. When run on hard road surfaces the tire is running over a very thin half oval surface, but when the tire slips the grip assumes a slanting position on the tire and takes a deep hold in mud or snow.

Made for all sizes of single or dual tires

Write us for our liberal proposition



For Trucks

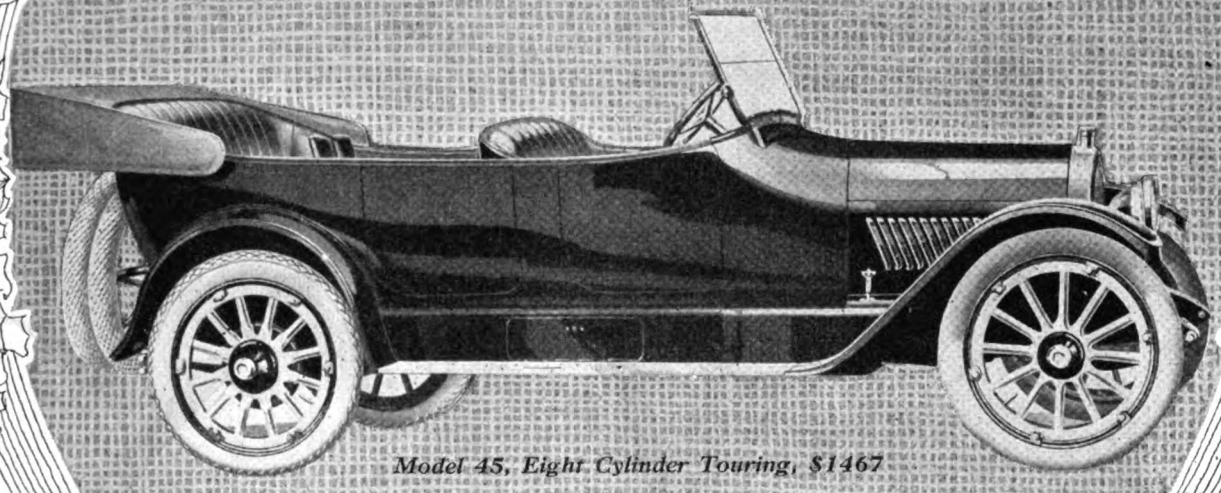
Woodworth Manufacturing Corp.

Niagara Falls, New York

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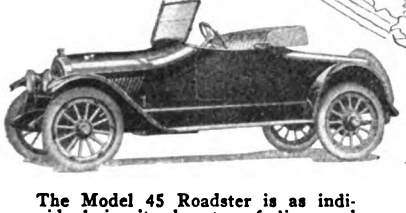
Oldsmobile

Sets The Pace 20th Year



Model 45, Eight Cylinder Touring, $1467

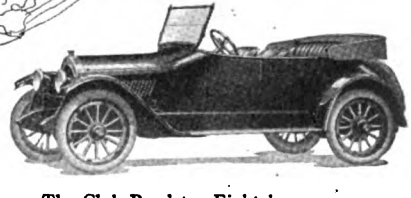
Beauty-Power



The Model 45 Roadster is as individual in its beauty of line and finish as the touring car and embodies the same striking features.

NO car in all motordom ever went *out in front* so fast! Because every member of the Oldsmobile crack dealer organization is behind it, realizing he has

The Outstanding Car of the year—the outstanding car of its price class—the outstanding Eight; a true, dependable and powerful performer; a beautiful car in every sense; and a car that gives the customer the utmost value for his money.



The Club Roadster Eight has proven immensely popular, because of the unusual amount of seat and knee room for this type of car.

THE things you can actually show a prospect, not merely talk about, give this Oldsmobile a remarkable selling advantage. The clean, simple and accessible V-type motor; the eighty-four inches of spring-length; the distinctive natural hickory wheels; the genuine walnut instrument board and steering wheel; the distinguished rustproof nickeled radiator; the French-plaited, first-grade leather upholstery; the exterior finish.

AND you can demonstrate immense speed with ease, flexibility in threading tangled traffic at a mile or two an hour on high gear, lightning pick-up, hill climbing. There are a limited number of open memberships in the Oldsmobile dealer organization, and we will be glad to hear from you with reference to joining our successful ranks. You will find us at the New York and Chicago shows. But better wire or write the factory now.

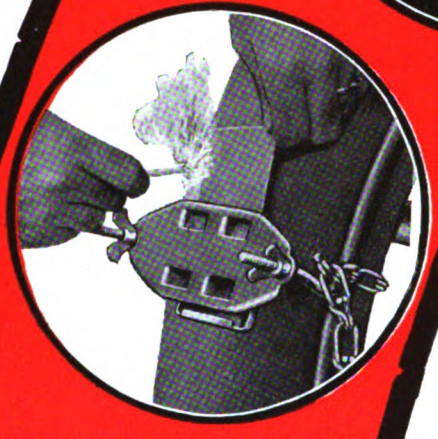
Eights *Touring $1467 Roadster $1467 Club Roadster $1467* ***Sixes*** *Touring - - $1185 Roadster - - $1185* ***All-Season Sixes*** *Sedan - - $1595 Coupe - - $1695*

OLDS MOTOR WORKS, LANSING, MICHIGAN

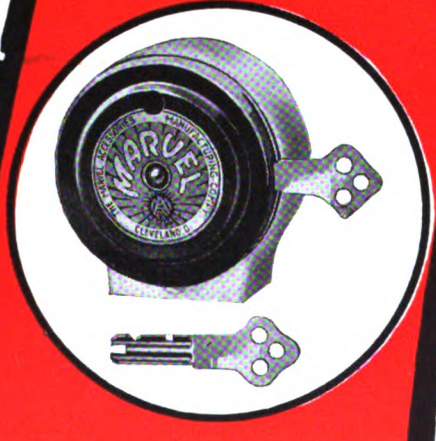
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MAR
NECES











Marvel Dealers

Nineteen seventeen was the best Marvel year.

Nineteen eighteen will be better; larger in volume. We will work harder for you.

The livest bunch of necessities will be backed by the snappiest sales helps. Marvel has planned to work for you every minute.

Dealer Helps

There will be window transfers, moving picture slides, wall cards, gas signs, counter cards, envelope stuffers, imprinted literature, window displays, demonstrating outfits, newspaper cuts, prepared advertisements, national advertising.

There will be forceful sales bringers for every Marvel dealer.

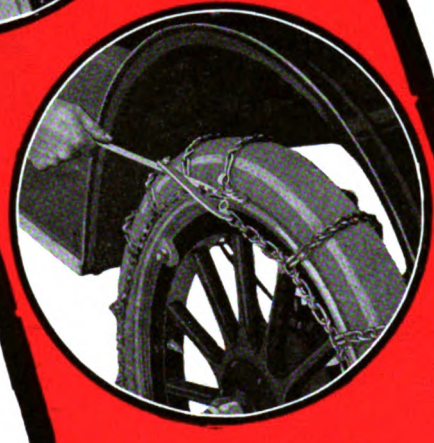
Stock the Marvel goods for the biggest sales year. Go over the top with Marvel and gain a profit.

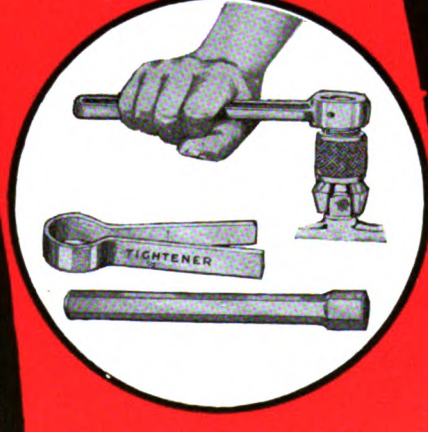
The MARVEL ACCESSORIES MFG. CO.
CLEVELAND. OHIO. MARVEL. BLDG.

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VEL
SITIES







Marvel Distributors

To the jobber who helped Marvel build big, successful 1917—to these old friends as to the new distributors stocking the goods for 1918—greetings—profits.

Marvel 1918 sales plans are matured. The line is more complete. With new items, larger sales opportunities are offered. We have planned new methods, improved sales helps, direct work that will help our distributors.

Look for Greater Profit

Marvel will work with war time economy BUT with war time EFFICIENCY.

Map your sales to be in this success. Your salesmen are offered new sales helps that will put your stock across in a big way. This Marvel effort will be sustained plugging, good consistent assistance that will help you sell at every angle. Let us give you the details personally. You like a good, warm sales scrap—then get going with Marvel. We will be in the center and around all the edges of 1918—strong. The "Marvel Sales Tank" is going into action.

COUPON

Gentlemen:—

Let us have your 1918 dealers proposition.

Name _____

Street _____

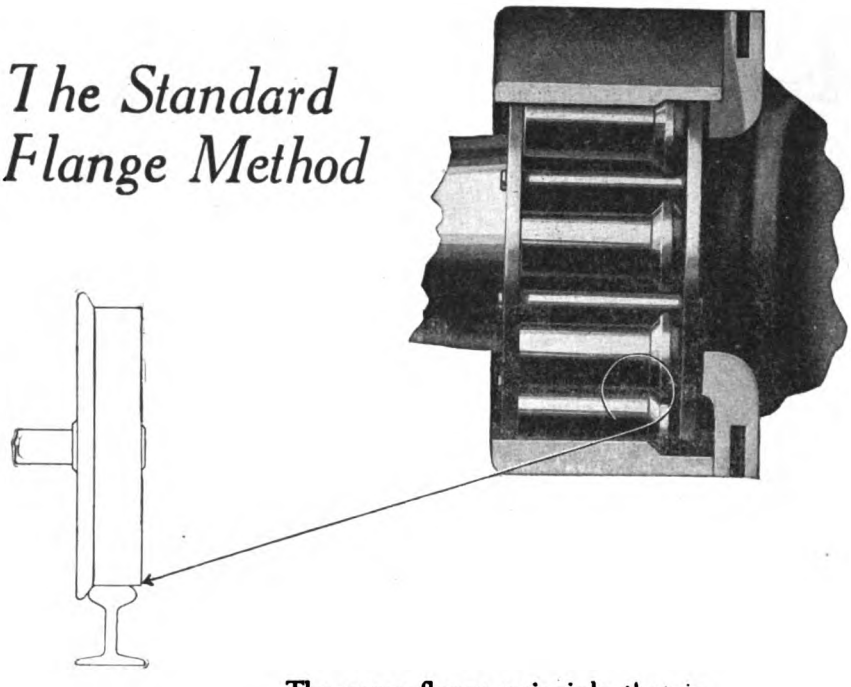
State _____

The MARVEL ACCESSORIES MFG. CO.
CLEVELAND, OHIO. MARVEL, BLDG.

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BOWER SAVES POWER

The Standard Flange Method



The same flange principle that is embodied in the construction of the flanged car wheel is also found in Bower Bearings.

It is the flange on the wheel that holds the big 200-ton locomotives on the track and guides them around curves. Also in Bower Bearings the flanged head on the rollers guides them and resists end-thrust.

BOWER
ROLLER BEARING CO.
Detroit Michigan

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The Marvelous New Dorris

A vital improvement in the famous Dorris Six-Cylinder Valve-In-Head Motor results in a conspicuous economy of operation.

A radical departure in chassis construction makes possible a body design of grace and beauty never before attained.

See this new Dorris at the Chicago Show

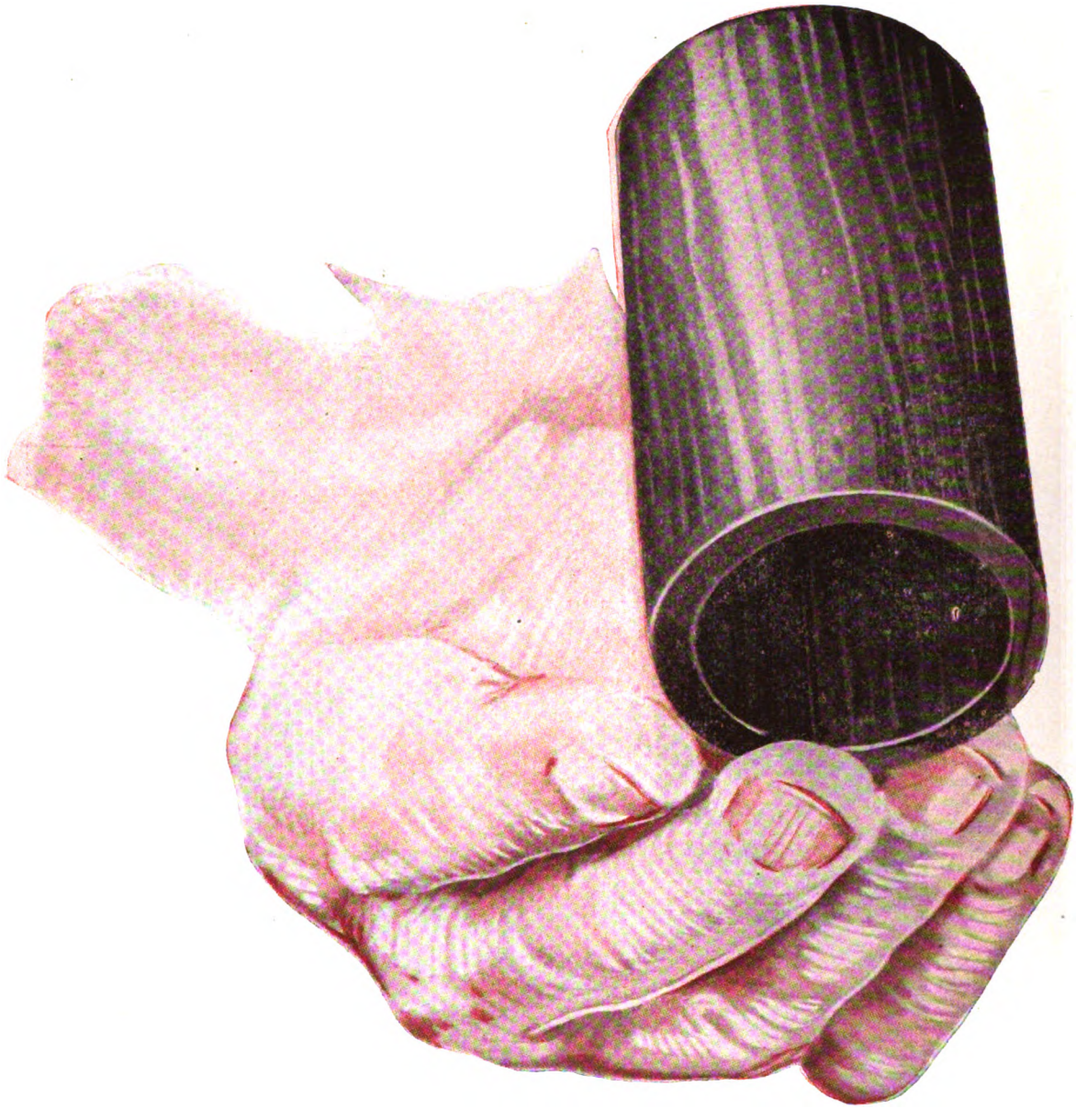
DORRIS MOTOR CAR CO.
Laclede and Sarah :: :: St. Louis
Manufacturers

Built up to a Standard, Not down to a Price

DORRIS

A128

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NIGRUM

TRADE MARK REG. U. S. PAT. OFF.

IMPREGNATED WOOD OIL-LESS BUSHINGS

YOU see illustrated on these pages two different kinds of *self-lubricating* bushings.

They are everywhere known by machinery-wise men as "Genuine Graphited *Oil-less* Bushings."

Millions are installed each year in hundreds of widely different types of machinery.

They are used and endorsed by the United States Government for use in Battleships, Destroyers, Submarines and Aeroplanes.

They are used and endorsed by the leading manufacturers of automobile trucks, passenger cars, airplanes, tractors, pumps, windmills, gas engines, farm, textile, shoe, mine, confectionery and many other types of machinery.

Truck and Car Manufacturers are using these Oil-less Bushings in certain places about their products. They find this a very practical method of prolonging the service life of those products, for the following reasons:

Grease and Oil Cups are placed on bushings for the obvious purpose of oiling them. A Bushing that fails to receive proper lubrication wears out quickly.

It is not a question of how good the bushing is or how carefully it is installed. If it is not kept properly lubricated, it will wear out *fast*, thereby causing the owner considerable annoyance, possible accident, and frequent overhauling expenses.

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BOUND BROOK

TRADE MARK REG. U. S. PAT. OFF.

GRAPHITE AND BRONZE OIL-LESS BUSHINGS

There are many bushing places about motor cars and trucks which are continually liable to neglect because of their inaccessible location.

As a matter of fact, three out of four drivers do neglect to keep the vital, but inaccessible, bushings properly lubricated.

So, far sighted manufacturers use *oil-less* bushings at such inaccessible points—bushings that run smoothly and last a long time with or *without* continuous lubrication, and *in spite of* neglect.

Genuine Graphited Oil-less Bushings safeguard machinery. They contain within themselves sufficient lubricant to last their lifetime. Oiled or not oiled, attended to or neglected, they continue to run smoothly and efficiently, keeping machinery on the job, in good order, that otherwise might be held up or completely out of service.

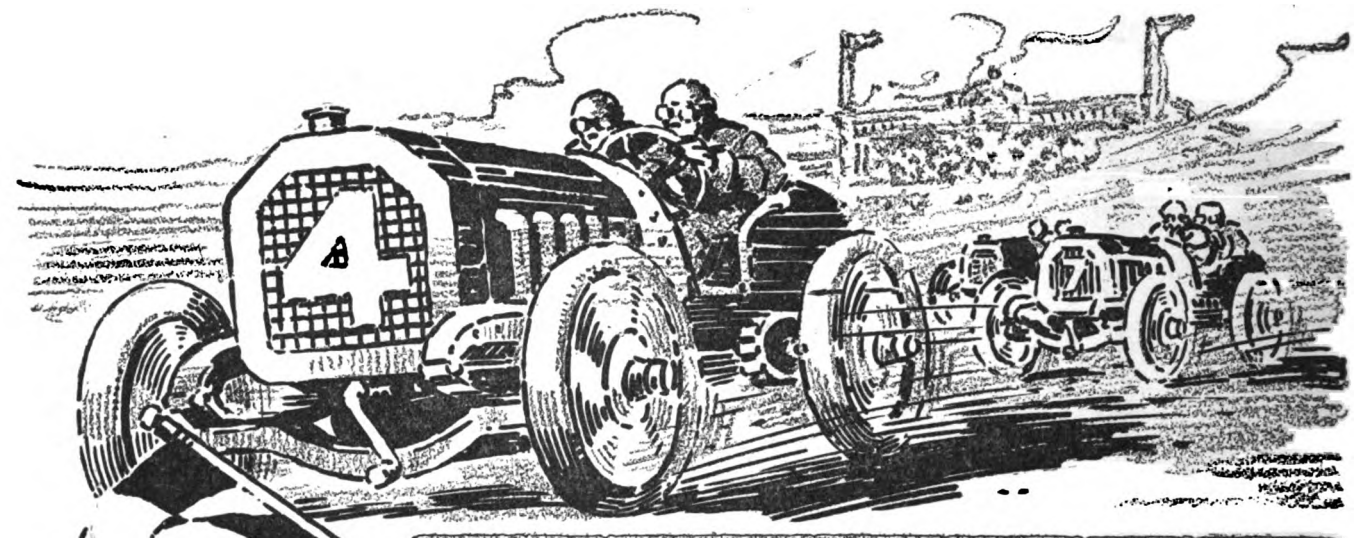
All Genuine Graphited Oil-less Bushings have always been made at Bound Brook, U. S. A.

Bound Brook Oil-less Bearing Company

Specialists in the manufacture of Oil-less Bushings for more than a Third of a Century

Bound Brook, New Jersey

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Men Who Know Say Texaco

In operating a racing car one factor which receives the utmost attention from the driver and his mechanician is the question of lubrication. These men realize better perhaps than do most owners of pleasure cars, how important a matter is the selection of the proper motor oil.

In this connection it is interesting to note that many of the most successful racing drivers in this country swear by

TEXACO MOTOR OIL

Louis Disbrow, for instance, says:

> "I find in using Texaco the temperature of the motor is reduced 20° F. I have never found it necessary to take up a bearing or remove carbon or grind valves during the entire season."

Texaco Motor Oil lubricates perfectly. It reduces friction to a minimum. It stands up well in use, retains its original lubricating qualities, because it prevents the leakage of gasoline into the crank case. Due to certain basic qualities it cannot deposit a hard carbon crust. It is the oil for *results*.

When you buy motor oil buy Texaco. The best way, the safest way, to buy is in one or five gallon cans. You can identify Texaco by its clear, clean color.

THE TEXAS COMPANY
New York Chicago Houston
DISTRIBUTING OFFICES IN MOST CITIES

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This bridge is built for strength—

like the PHILADELPHIA DIAMOND GRID BATTERY

The reason the bridge is strong is this: It is braced in every direction against every possible strain by angle braces that form diamonds everywhere.

The plates of the Philadelphia Diamond Grid Battery are constructed on the same plan. No matter where the strain may come, a strong diamond truss is there to resist it. That is why Philadelphia Diamond Grid plates do not buckle. That is why they hold their active material and last 40% longer than other batteries.

But not only the plates are strong—every feature of the Philadelphia Diamond Grid Battery is as sturdy as can be made—the quarter-sawed separators that give perfect insulation and last as long as the plates themselves; the petticoated pillar-posts that prevent creeping of acid; the lock corner, dowelled, acid-proof cases; the new easy-filling vent plugs; the bolted handles; unit seal assembly; and the moulded rubber covers. Part for part, it is the most scientific battery made.

Philadelphia Diamond Grid Batteries have been manufactured for twelve years. They are used in electric passenger cars, electric trucks, storage battery locomotives, by the U. S. Army and Navy, and for practically every storage battery use. For automobile starting, lighting, and ignition, they may be obtained from service stations and dealers all over the country in sizes to fit any make, model, or year of car. Every battery is absolutely guaranteed to give eighteen months' service.

The only battery that has Diamond Grids inside has the Diamond trade mark outside. Look for it.

Philadelphia Storage Battery Company

Ontario and C Streets **Philadelphia, Pa.**

PHILADELPHIA DIAMOND GRID BATTERY

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Fighting masts are built for strength—

like the **PHILADELPHIA DIAMOND GRID BATTERY**

The lattice work of diamonds which braces them in every direction enables them to stand even when shot almost to pieces. It is the same construction which makes the plates of the Philadelphia Diamond Grid Battery proof against buckling and losing their active material.

This wonderful battery presents an

Unusual Opportunity for Dealers.

It is backed by an eighteen months' guarantee, a follow-through selling plan that sells batteries not only ***to*** the dealer but ***for*** the dealer, and powerful advertisements in national and trade magazines. Nearly one thousand dealers are now handling this battery with extraordinary success, but your territory may still be open. Write for details of our proposition to you.

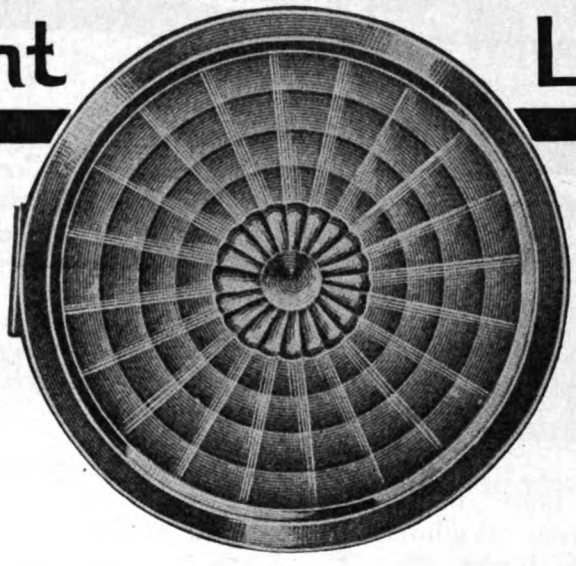
Philadelphia Storage Battery Company

Ontario and C Streets **Philadelphia, Pa.**

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MORE LITE AUTO LENS

More Light Less Cost



Made in both Crystal and Amber Glass

Dealers and Jobbers write for our attractive proposition

100 Per Cent Efficient

We know now that More-Lite Auto Lenses will give *more light.*

We know that they will give more light *where you want it.*

We know that they comply with headlight laws of all states.

All of these three things are important. In no other lense can they be found in such satisfactory combination.

They are the things that have brought More-Lite into leadership in less than a year, and have crowded our factory to capacity.

More-Lite prices are low.

You can't get More-Lite efficiency in any other lense selling at the same or near the same price —you can't exceed More-Lite efficiency in any lense selling at any price.

More-Lite auto lenses are made in either crystal or amber class; one piece, scientifically designed by experts.

They secure a brilliant light, but so diffused as to comply with the headlight laws of all states and to render maximum safety to night driving.

No trouble to install More-Lite. Made in all sizes.

More-Lite Auto Lenses have all the appearance of the higher priced lenses and add an attractive finish to the car.

Manufactured by

L. E. Smith Glass Co., Mount Pleasant, Pa.

Compare More-Lite prices with those of other high grade diffusing lenses.

6	to	8½	dia.	crystal—$1.50 per pair;		amber,	$2.00	per	pair
8⅝	to	9½	"	"	1.75	"	"	2.25	" "
9⅝	to	10¼	"	"	2.00	"	"	2.50	" "
10¼	to	11¼	"	"	2.25	"	"	3.00	" "

MORE-LITE

L. E. SMITH GLASS CO.,
Mt. Pleasant, Pa.

Gentlemen:—

Enclosed find ——— dollars, for which send me a set of ——— in. More-Lite Auto Lenses.

Name .....

Address .....

City .....

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Westcott

THE Westcott Motor Car Company was the first to solve the problem of chassis lubrication by eliminating grease cups and installing wick-fed oil cups exclusively, and the first to equip all their open models with "*self-acting*" tops.

They foresaw the need of automatic regulation of motor temperature and incorporated thermostatic control in every Westcott power plant.

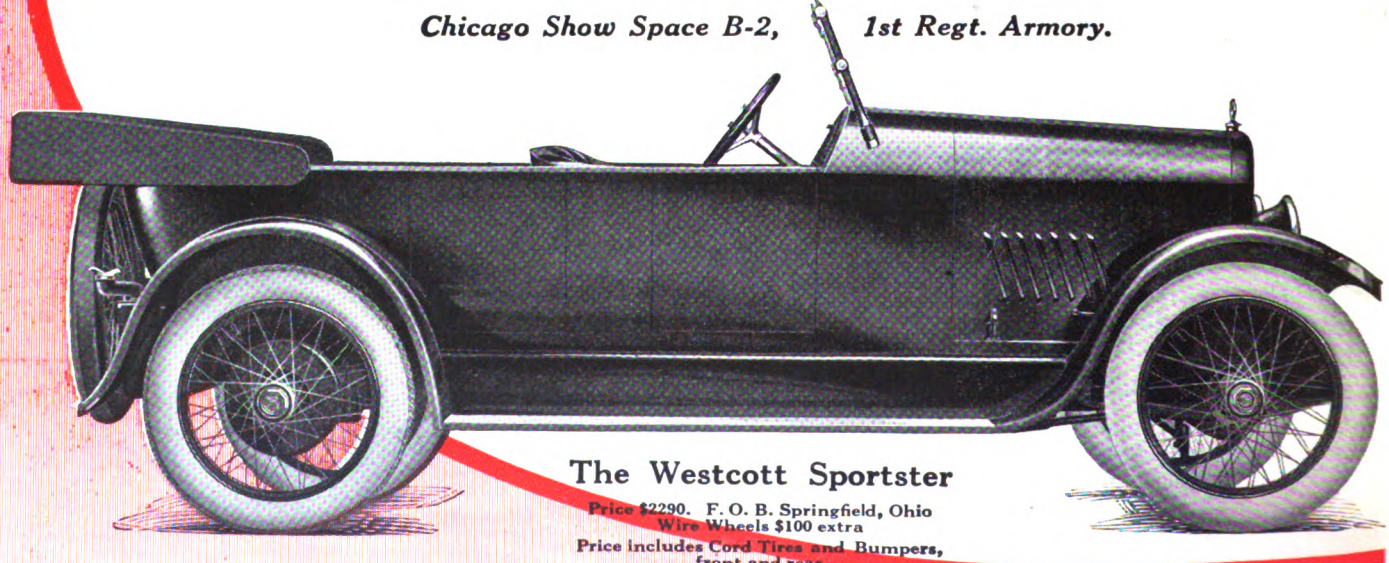
In like manner they have anticipated every requirement in body types so as to make the masterful all-season Westcott chassis available in just the style of car completely satisfactory to each buyer.

Now, though still midwinter, and while Westcott Convertible Sedans and Coupes are selling as fast as the factory can build them, the Westcott designers are ready with the most rakish summer model, the Westcott *Sportster*, whose every line and angle proclaim it the pace-maker in the ultra smart class.

Whether you are interested in motor cars from the standpoint of owner or distributor, your inspection of our offerings at the shows will convince you that the Westcott is the outstanding value of the year.

New York Show Space B-1.

Chicago Show Space B-2, 1st Regt. Armory.



The Westcott Sportster

Price $2290. F. O. B. Springfield, Ohio
Wire Wheels $100 extra
Price includes Cord Tires and Bumpers, front and rear

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Westcott Superiorities

Continental Motor, 6-cylinders, 3½ x 5¼: Cast Aluminum Crank Case.

Timken Axles, Bearings, and Brakes.

Delco Starting, Lighting, and Ignition.

Wick-fed Oil Cup Chassis Lubrication *without a single grease cup.*

"Self-acting" Top of Pantasote on all open models, affording simplicity and ease of adjustment.

Thermostatic Control of Engine Temperature.

Fedders Cellular Radiator.

Rayfield Carburetor with Integral Priming Device, operated from seat.

Gemmer Semi-irreversible Steering Gear; Adjustable Steering Column; Solid Walnut Steering Wheel, Aluminum Mountings.

Spicer Universal Joints.

Boyce Moto-Meter.

Jiffy Curtains with Blackmore Door Openers; Tool Compartment in Driver's Door.

Wheel Base 125".

Double-ventilating, Rain-visioned, Storm-Proof Wind-shield.

Chrome Vanadium Springs throughout.

Controls in Normal Driving Position.

Disposition of Auxiliary Seats.

Quality and Beauty of Upholstery.

Quality of Instrument Board and Instruments.

Low Up-keep; Endurance; Beauty; Comfort.

35 x 4½ Oversize Tires (32 x 4½ on Sportster) Non-skid Rear: Ribbed Front.

French Pleated No. 1 Long Grain Dull Leather upholstery; Genuine Curled Hair and Double-deck Springs.

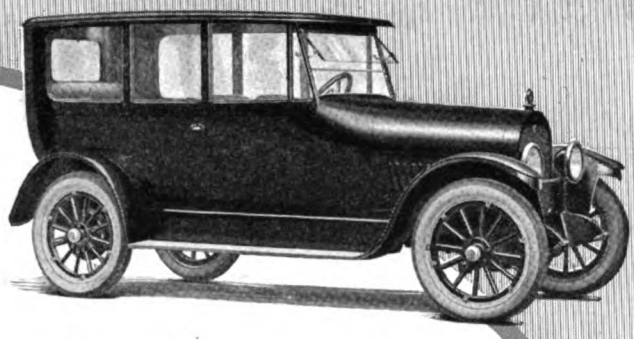
Power; Hill Climbing; Low Throttling; Acceleration; Accessibility; Freedom from Vibration.

Variety of Color Selections.

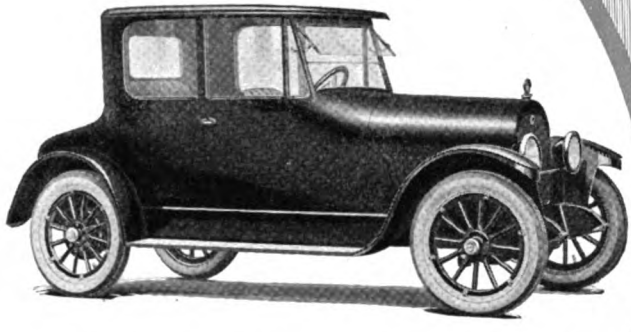
Ample Leg Room in both Compartments.

Every Car Road-tested before Shipment.

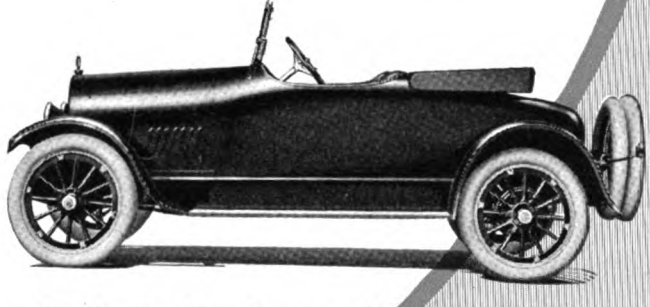
THE WESTCOTT MOTOR CAR CO.
SPRINGFIELD, OHIO



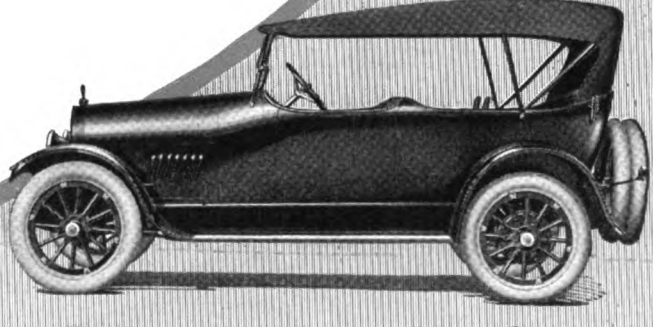
The Westcott Seven Passenger Convertible Sedan
Price $2790. F. O. B. Springfield, Ohio



The Westcott Four Passenger Convertible Coupe
Price $2790. F. O. B. Springfield, Ohio



The Westcott Four Passenger Touring Roadster
Price $1890. F. O. B. Springfield, Ohio



The Westcott Seven Passenger Touring Car
Price $1940. F. O. B. Springfield, Ohio

Westcott Advertising for 1918 will be dominating both in volume and in character.

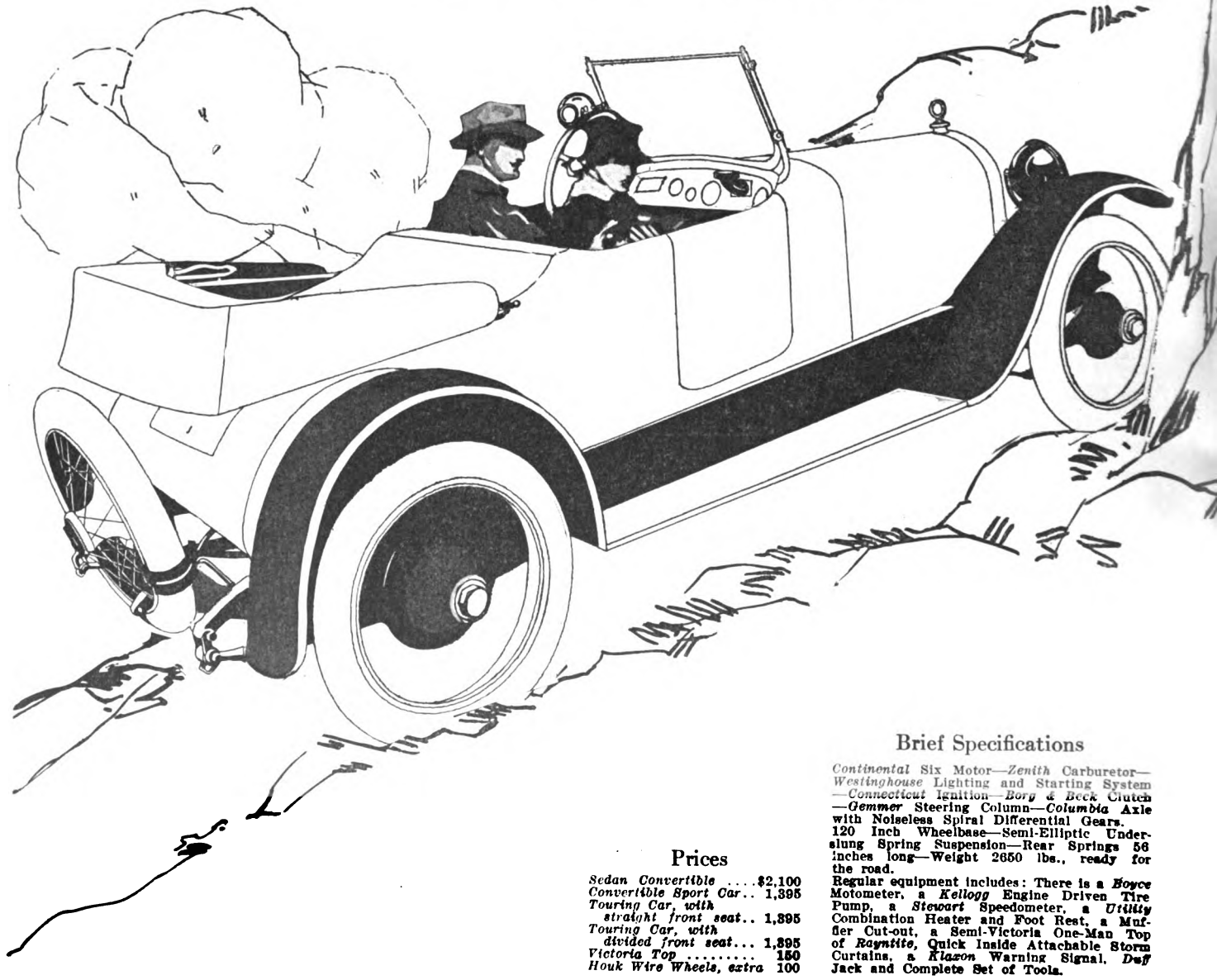
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On Display at the New York and Chicago Automobile Shows

ANDERSON SIX

Convertible Sport Car

Changeable in a twinkling from real roadster to real 5-passenger touring car



Prices

Sedan Convertible	$2,100
Convertible Sport Car	1,395
Touring Car, with straight front seat	1,395
Touring Car, with divided front seat	1,395
Victoria Top	150
Houk Wire Wheels, extra	100

Brief Specifications

Continental Six Motor—*Zenith* Carburetor—*Westinghouse* Lighting and Starting System—*Connecticut* Ignition—*Borg & Beck* Clutch—*Gemmer* Steering Column—*Columbia* Axle with Noiseless Spiral Differential Gears.

120 Inch Wheelbase—Semi-Elliptic Underslung Spring Suspension—Rear Springs 56 inches long—Weight 2650 lbs., ready for the road.

Regular equipment includes: There is a *Boyce* Motometer, a *Kellogg* Engine Driven Tire Pump, a *Stewart* Speedometer, a *Utility* Combination Heater and Foot Rest, a Muffler Cut-out, a Semi-Victoria One-Man Top of *Rayntite*, Quick Inside Attachable Storm Curtains, a *Klaxon* Warning Signal, *Duff* Jack and Complete Set of Tools.

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The most *useful* car of them all

THE Anderson Convertible Sport Car is, we believe, the greatest utility car of the year, for it offers the buyer of a single car the use of two entirely different models—touring car and roadster. It will be either—just as the owner desires and whenever the occasion requires.

Its conversion into a touring car is a matter of seconds only.

As a touring car it is roomy and exceedingly comfortable—complete in every particular. It will accommodate five grown people without the slightest crowding or cramping.

Entrance to the tonneau is by an aisle between the divided front seats. The seats themselves are luxuriously wide and soft, tailored in real leather, French pleated. The top—a Semi-Victoria type—covers both the front and rear seats, just as it should. A UTILITY Combination heater and foot rest is provided for cold weather driving.

Or would you drive a roadster today—then just fold the rear seats, tonneau and all, entirely away out of sight. It's a matter of seconds and requires no effort.

Now, in place of a tonneau, you have a graceful sloping deck of the smartest and most fashionable design. Underneath you will find liberal storage space, completely dust proof and lockable, for any amount of luggage, wraps and the many things such as two would carry *"en tour"* or on an afternoon's shopping expedition.

Here is a car that invariably commends favorable attention, thanks to its pleasing individuality and refinement of design. It looks like a custom built car, *and it is.*

All Anderson Bodies are custom built in our own big body plant, where we have specialized in the production of fine coach work for 28 years.

As a result Anderson bodies possess an individuality even aside from the originality of their design. The bodies are more substantially built—more carefully constructed, less subject to rattles and metallic rumbles. The finish is more deep and lasting. It is hand applied and hand rubbed—a finish ordinarily used only on the most expensive custom built bodies.

As for performance, this Anderson SIX will do all the things any stock SIX will do. It is constructed entirely of units of nation wide reputation—units that are everywhere regarded by motor wise men as the best.

It has more speed than any amateur driver should use. It will average 16 miles to a gallon of gas. It will throttle down to two miles an hour on high. It will take hills more easily than most cars you've seen. These are things an Anderson owner will tell you, or things you can prove for yourself.

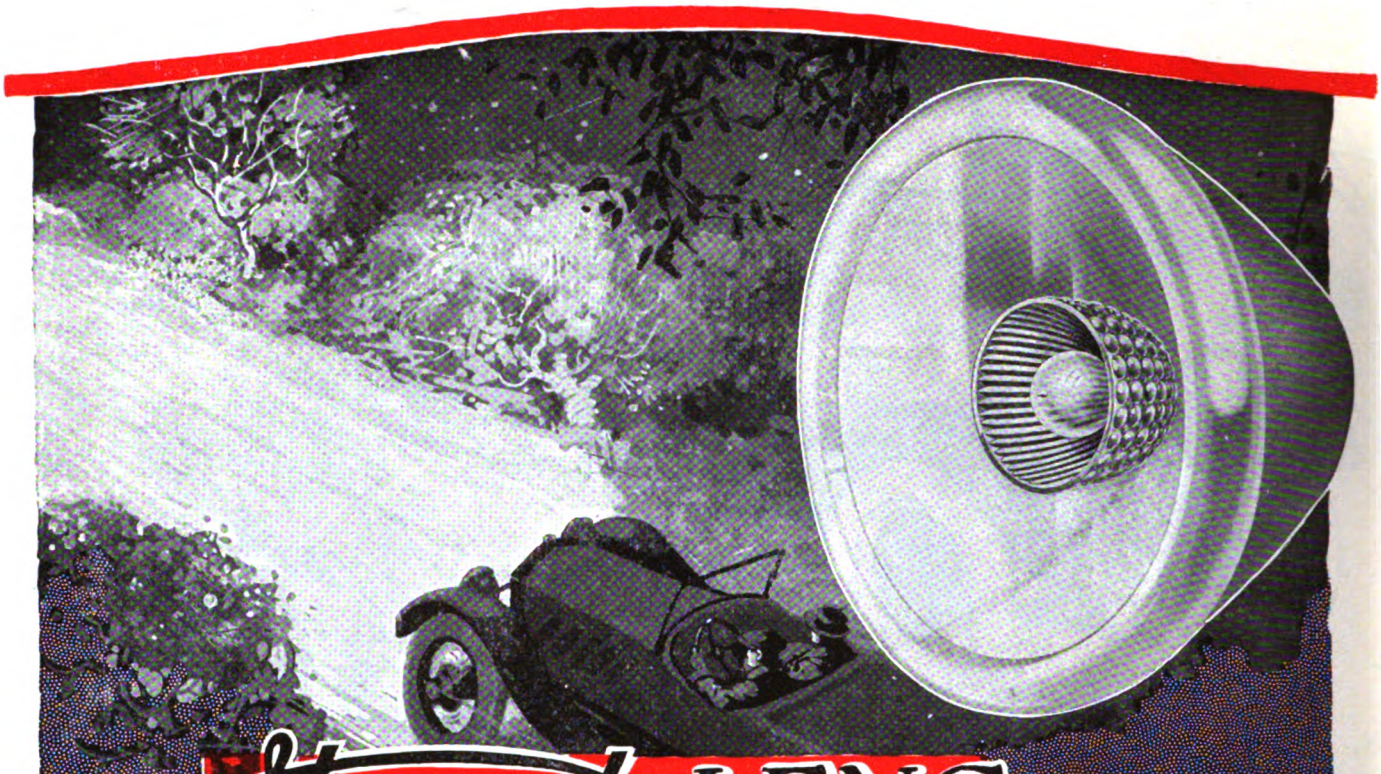
Dealers: Here is a car with which to meet war-time conditions. It possesses just the extra margin of chassis value needed to outstrip competition and stands in a class by itself when utility is considered. Some territories still open.

Descriptive literature available and will be mailed on request.

ANDERSON MOTOR COMPANY, Rock Hill, South Carolina

Foreign Department—8-10 Bridge Street, New York

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Stewart LENS

Provides a flood of light, which illumines the full width of the road including side ditches, and *without glare.*

This is the big point in the Stewart Lens—complete and adequate illumination *without glare.*

Gives complete illumination, because the light is diffused at its source (the light bulb) before it reaches the reflector.

Not only provides 100% light, but a light that is safer to drive by than ordinary headlights.

Because it gives no glare, the Stewart Lens can be used for city driving, with full lights turned on, with perfect safety and without danger of police censorship.

The design is based on scientific principles. Consists of a cup-shaped glass bowl which surrounds the light bulb. At the back it fits around the bulb stem. The forward end is open. The outer surface is covered with a series of curved elevations; the inner surface is ribbed.

When the lights are on, the Stewart Lens gives a rich, distinctive appearance to the headlight; adds to the appearance of the car.

The Stewart Lens will fit any car. Can be installed on any headlight. Produces the same perfectly diffused *no-glare* light on any size headlight. There is only one size; one model. Dealers and Jobbers can fill all orders from one stock item.

The price is $2.00 per pair, complete. At this popular price the Stewart Lens is within reach of every car owner.

Installation takes but a minute—remove front glass, take out lamp bulb, place the bulb stem through the back of the Stewart Lens and replace it in the headlight.

Stewart-Warner Speedometer Corporation
CHICAGO, U. S. A.

$2
PER PAIR

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MOON
REG. U.S. PAT. OFF.

MOON MOTOR CAR CO.
ST. LOUIS, MO. U.S.A.

Six-45
7-pass. Touring and Club Roadster
$1685
f. o. b. St. Louis

Six-66
7-pass. Touring and Club Roadster
$1850
f. o. b. St. Louis

Outstanding—Upstanding

Whether the type is the touring car, club roadster, coupe, cabriolet, sedan or victoria, you'll see a car that *looks* right up to the head of the 3,000-dollar class—examine it, and you find it superbly finished, modishly appointed and sound all through as to parts—drive it, and you ride in deep-cushioned comfort, with that gratifying double sense of dependably ample power under perfect control and the velvety smoothness of co-ordinate perfection.

The New Moon Six-36

—the Six we announced after having completed plans for the *10,000-car-capacity* addition to our plant necessary to turn out this car at the *quantity-produced-Four* price quoted.

A true Moon Six—ultra-smart—114-inch wheelbase—double cowl and long honeycome Fedder radiator—both extra high—nothing omitted that goes to make for style, comfort and stand-up—and a true *lightweight* economy car.

$1195
f. o. b. St. Louis

The Six-36 completely rounds out the Moon line—as is clearly shown by the admiration it is exciting among car owners and the further influx of dealer applications for territory. Dealers who act quick may still secure locations.

MOON MOTOR CAR COMPANY
St. Louis, U. S. A.

Prices subject to change without notice.



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ATLAS

3/4 Ton Trucks







THREE OF THE THIRTY-THREE ATLAS BODY TYPES

The Atlas Dealer Has This Tremendous Advantage at the Start

Each of the 33 Atlas bodies is literally tailored for the requirements of a definite line of business. Each body type is designed to carry out ideas borne of experience in some vocation. These types are not experiments—they are not guess work. They cover the field of American business completely and each has been proved the best adapted body for its work in style, construction and appearance.

The Atlas power plant and Atlas rear construction are two more big outstanding sales points for the Atlas dealer. Thirty per cent more piston displacement puts the Atlas motor far above competition for sturdy, enduring work the year 'round.

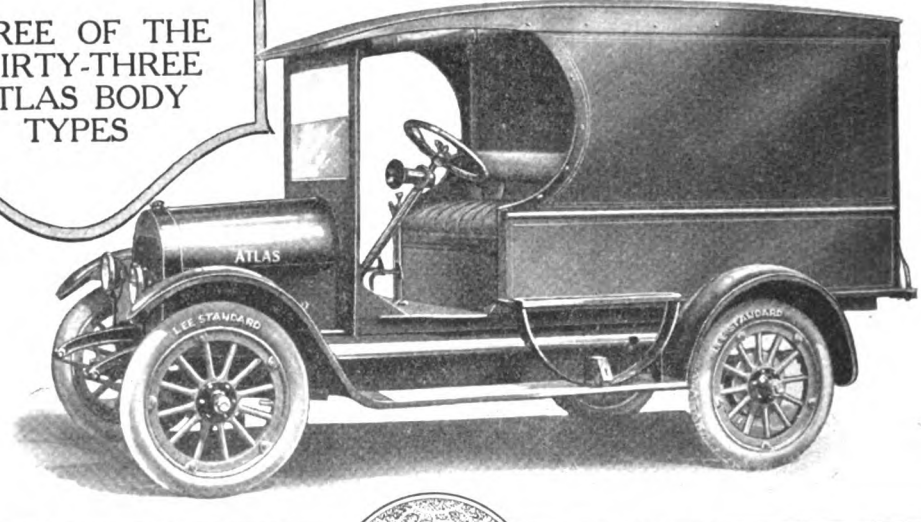
The Atlas rear axle is built to carry a twenty-five per cent bigger load than the rated capacity of the truck.

These great construction advantages make the Atlas first price seem small enough to the merchant—and they are your insurance against loss through excessive service cost.

Write for literature and a personal interview.

"Built for Your Business"

Martin Truck and Body Corporation
York, Pa.



COMMERCIAL ATLAS TRUCKS

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"Tells the motor's secrets"

Power is Precious

How to guard against wasting it

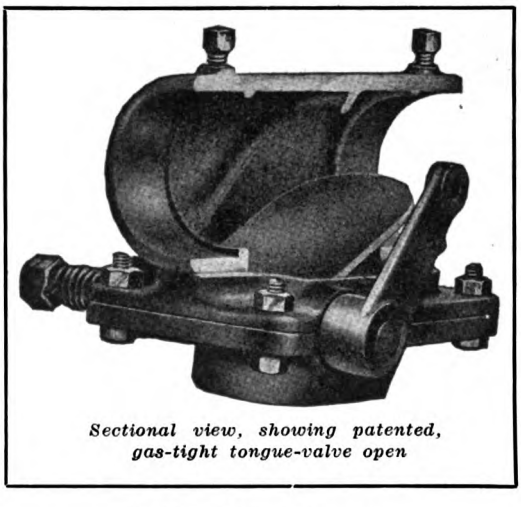
Power is too precious to waste. Yet you may be wasting it every day, without knowing it.

Every motorist needs a device on his car which will tell him instantly whether he is getting all the power he should.

This is what the G-P Muffler Cut-Out does.

It is the most simple and practical method of finding out just how healthy your motor is.

A G-P Muffler Cut-Out accentuates the noise of every explosion in every cylinder. It enables you to tell in a second whether you are wasting power, gas, money. It makes for economy.



Sectional view, showing patented, gas-tight tongue-valve open

The special construction of the G-P Muffler Cut-Out prevents back pressure. Carbon cannot accumulate. Leakage is impossible. You can be sure that the G-P Muffler Cut-Out is always on the job.

Special G-P Cut-Out for Fords. Complete with all fixtures.

Sales Department
EDWARD A. CASSIDY CO., Inc.
Madison Ave., at 40th St., New York

Manufacturers
THE G. PIEL COMPANY, Inc.
Long Island City, N. Y.

G P Muffler Cut-Out

"TELLS THE MOTOR'S SECRETS"

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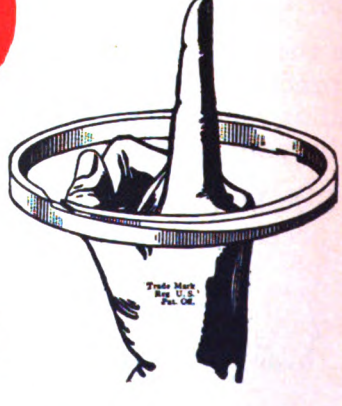
This is "A Most Prosperous New Year" for garage men who handle Inlands. They are ringing out old piston rings and putting in hundreds of new Inlands.

The dealer who handles Inlands has *three special* advantages that no other piston ring proposition offers. He knows that the Inland is *mechanically* perfect—absolutely gas-tight and strongest and most durable.

He *knows* he can get *more* car owners to install Inlands, because with Inlands he can save them $5 to $10 per set over any other type of gas-tight piston ring.

He *knows* that Inland's big advertising is convincing thousands of car owners of the economy of installing gas-tight piston rings and of the *double* saving that Inlands offer. If you are not an Inland dealer now make a New Year's resolution to handle Inlands, and get the full business building benefit of Inland advantages and Inland advertising.

INLAND
1 PIECE PISTON RING



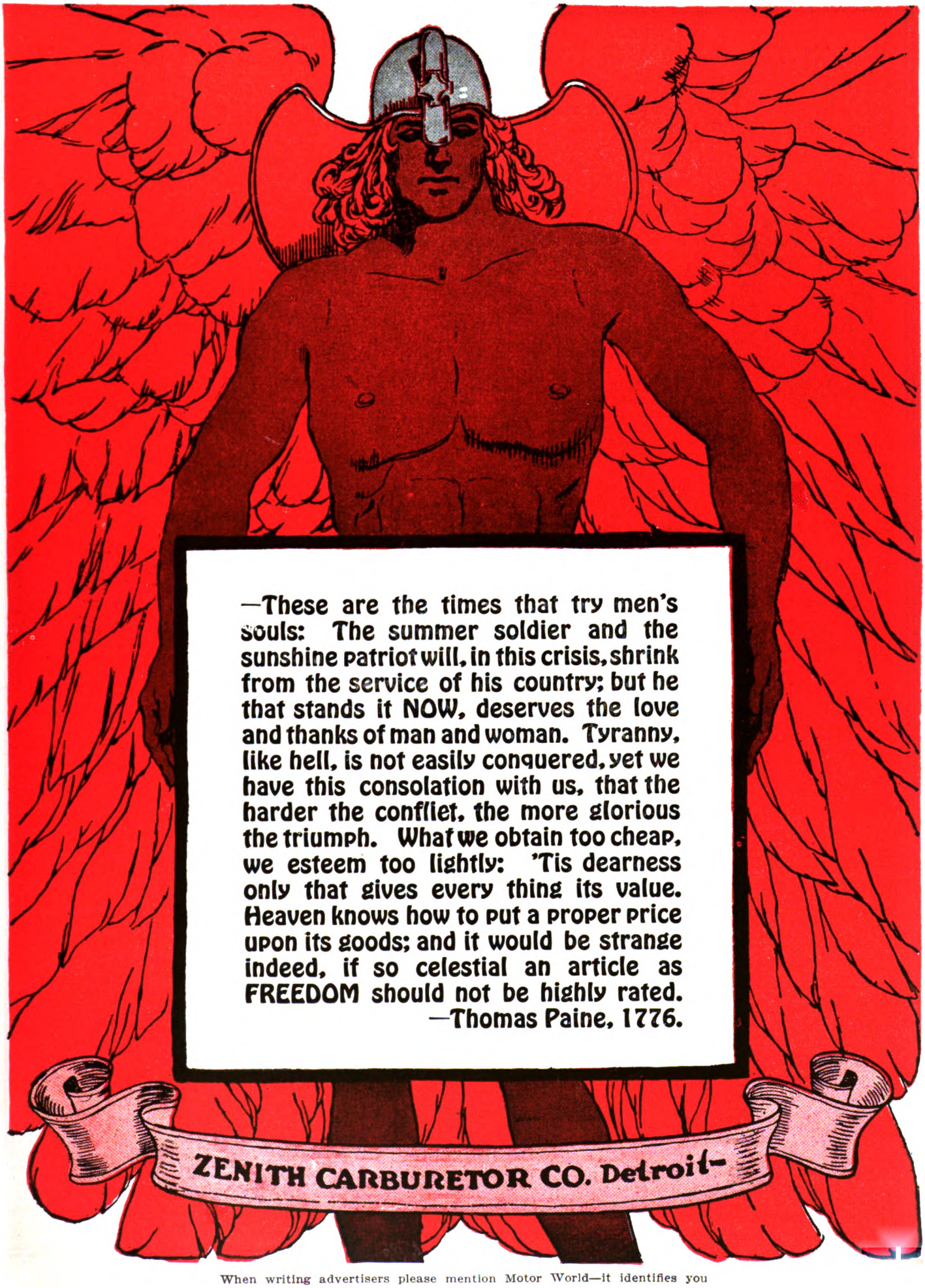
Strike while the iron is hot.

Send today for *complete free material* which is specially prepared for your local use. It will link *your* place right up with the car owners in your vicinity and bring *you* their over-hauling business. Write today.

Ask your jobber for terms to you on Inlands.

Inland Machine Works, 815 Mound Street, St. Louis, U. S. A.

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Just Published—1918 New Revised, Reset and Much Enlarged Edition, with 500 New Engravings Added

The Modern Gasoline Automobile

By VICTOR W. PAGÉ, M. S. A. E.

1032 (6 x 9) Pages **PRICE $3.00** ***1000 Specially Made Engravings***



This is the most complete, practical and up-to-date treatise on gasoline automobiles and their component parts ever published. In the new *revised* and *enlarged* 1918 *edition* all phases of automobile construction, operation and maintenance are fully and completely described, and in language anyone can understand. Every part of all types of automobiles, from light cycle-cars to heavy motor trucks and tractors, are described in a thorough manner, not only the automobile, but every item of it; equipment, accessories, tools needed, supplies and spare parts necessary for its upkeep, are fully discussed.

It is clearly and concisely written by an expert familiar with every branch of the automobile industry and the originator of the practical system of self-education on technical subjects. It is a liberal education in the automobile art, useful to all who motor for either business or pleasure.

Anyone reading the incomparable treatise is in touch with all improvements that have been made in motor-car construction. *All latest developments, such as high speed aluminum motors and multiple valve and sleeve-valve engines, are considered in detail. The latest ignition, carburetor and lubrication practice is outlined. New forms of change speed gears, and final power transmission systems, and all latest chassis improvements are shown and described. This book is used in all leading automobile schools and is conceded to be the* STANDARD TREATISE. The chapter on Starting and Lighting Systems has been greatly enlarged, and many automobile engineering features that have long puzzled laymenare explained so clearly that the underlying principles can be understood by anyone. This book was first published six years ago, and so much new matter has been added that it is nearly twice its original size. **The only treatise covering various forms of war automobiles and recent developments in motor-truck designs as well as pleasure cars. This book is not too technical for the layman nor too elementary for the more expert. It is an incomparable work of reference for home or school.**

Automobile Repairing Made Easy

By Victor W. Pagé, M.E.

A thoroughly practical book containing complete directions for making repairs to all parts of the motor car mechanism. Written in a thorough but non-technical manner. Will be found of special value to garage-men, chauffeurs and automobile mechanics; it also contains a mass of general information that will be of equal value to the motorist who takes care of his own car.

This book contains special instruction on electric starting, lighting and ignition systems. Tire repairing and rebuilding. Autogenous welding. Brazing and soldering. Heat treatment of steel. Latest timing practice. Eight and twelve cylinder motors, etc., etc. A guide to greater mechanical efficiency for all repairmen.

1,000 Specially Made Engravings on 500 Plates. 1,056 Pages (5½ x 8), 11 Folding Plates. 1917 Edition. Price, $3.00.

How to Run an Automobile

By Victor W. Pagé, M.S.A.E.

This treatise gives concise instructions for starting and running all makes of gasoline automobiles, how to care for them, and gives distinctive features of control. Describes every step for shifting gears, controlling engines, etc. Thoroughly illustrated.

Price, $1.00 net.

The Model T Ford Car, Its Construction Operation and Repair

By Victor W. Pagé, M.E.

This is a complete instruction book. All parts of the Ford Model T Car are described and illustrated; the construction is fully described and operating principles made clear to everyone. Every Ford owner needs this practical book. New edition. 75 illustrations, 200 pages. Large folding plate.

Price, $1.00.

Starting, Lighting and Ignition Systems

By Victor W. Pagé.

A practical treatise on modern starting and ignition system practice. Includes a complete exposition of storage battery construction, care and repair. Explains all types of starting motors—generators—magnetos and all ignition or lighting system units. Considers the systems of cars already in use as well as those that are to come in 1918. A book every one needs. Nothing has been omitted, no details have been slighted. A book you cannot afford to be without.

Nearly 500 pages. 297 Specially Made Engravings. 1917 Edition. Price, $1.50.

Storage Batteries Simplified

By Victor W. Pagé, M.E.

A comprehensive treatise devoted entirely to secondary batteries and their maintenance, repair and use.

This is the most up-to-date book on this subject. Describes fully the Exide, Edison, Gould, Willard, U. S. L. and other storage battery forms in the types best suited for automobile, stationary and marine work. Nothing of importance has been omitted that the reader should know about the practical operation and care of storage batteries. No details have been slighted. The instructions for charging and care have been made as simple as possible. 250 pages. Very fully illustrated.

Price, $1.50.

Automobile Welding with the Oxy-Acetylene Flame

By M. Keith Dunham.

Explains in a simple manner apparatus to be used, its care, and how to construct necessary shop equipment. Proceeds then to the actual welding of all automobile parts, in a manner understandable by everyone. *Gives principles never to be forgotten.* Aluminum, cast iron, steel, copper, brass, bronze and malleable iron are fully treated, as well as a clear explanation of the proper manner to burn the carbon out of the combustion head. This book is of utmost value, since the perplexing problems arising when metal is heated to a melting point are fully explained and the proper methods to overcome them shown. 167 pages, fully illustrated. **Price, $1.00**

Automobile Questions and Answers

By Victor W. Pagé, M.E.

This practical treatise consists of a series of thirty-seven lessons covering well over 2,000 questions and their answers on the automobile, its construction, operation and repair. The subject matter is absolutely correct and explained in simple language. If you can't answer all of the following questions you need this work. The answers to these and 2,000 more are to be found in its pages.

Give the names of all important parts of an automobile and describe their functions. Describe action of latest types of kerosene carburetors. What is the difference between a "double" ignition system and a "dual" ignition system? Name parts of an induction coil. How are valves timed? What is an electric motor starter, and how does it work? What are advantages of worm drive gearing? Name all important types of ball and roller bearings, etc., etc.

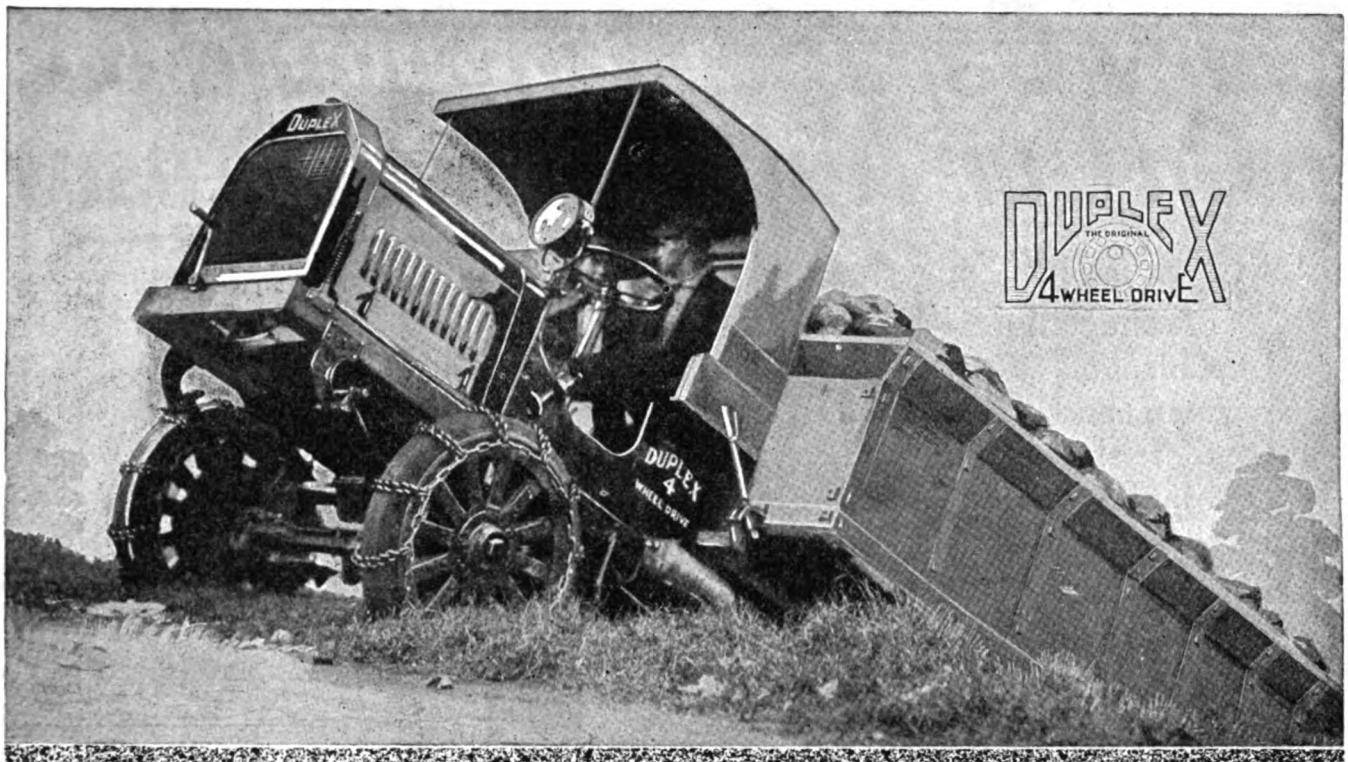
650 Pages. 350 Illustrations and Plates. 1917 Edition. Price, $1.50.

Any of these books sent prepaid on receipt of price, or a special circular of all our Automobile Books and charts sent on request.
FREE—Our new Catalog of Practical Books sent free on request.

THE NORMAN A. HENLEY PUBLISHING CO.

2 West 45th Street, New York

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NO GRADES TOO STEEP FOR THE DUPLEX 4-WHEEL DRIVE

STURDY and dependable, with irresistible reserve power, Duplex 4-Wheel Drive Trucks begin their notable haulage tasks where other types of commercial vehicles leave off. Exclusive application of the Duplex 4-Wheel Drive principle makes it possible for Duplex trucks to haul capacity loads under conditions that prevent the operation of any other type of heavy haulage vehicles.

No grades are too steep; no roads too snow-embanked; no sand or mud too deep for the Duplex—the motor truck that is equal to any emergency.

Built for year-'round service Duplex Trucks are on the job spring and summer, fall and winter—12 months of every year—performing satisfactorily under most adverse road conditions. They are opening up new territory to motor truck transportation—hauling raw materials and finished products overland from city to city—giving never-faltering service.

Duplex Trucks are built especially for contractors, road builders, manufacturers and jobbers—and are delivering capacity loads at lowest ton-mile costs. Let us send you data showing how profitably the Duplex is solving haulage problems in your line of business. Write for our catalog and the heavy haulers' magazine, "Duplex Doings," issued in the interest of better transportation methods.

To Dealers—Our production has been trebled and an opportunity is now offered established dealers in many sections of the United States to become distributors for the Duplex—the original 4-wheel drive truck. This is an opportunity of a lifetime to aggressive dealers—business men who are following the trend of development in the motor truck field. Write or wire today for complete specifications and our dealer proposition.

Address all communications to Dept. 101

DUPLEX TRUCK COMPANY
LANSING, MICHIGAN

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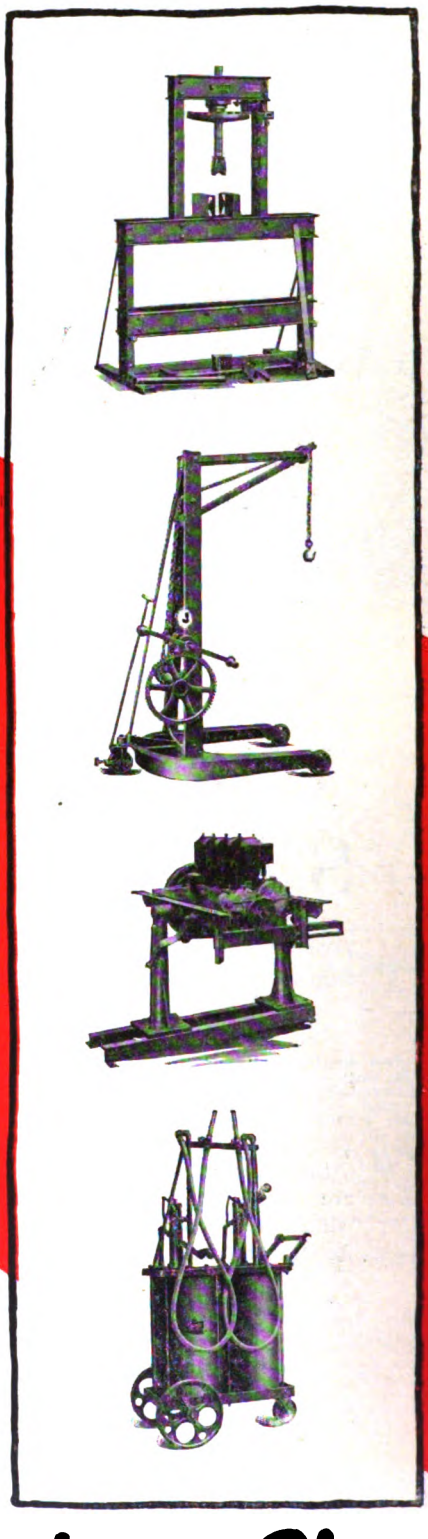
Every Garage Man Should Get In On Our Auto Show Contests

We will hold a contest at each of the Shows—New York and Chicago. We want every garage man and repair man attending these shows to see and learn about Manley equipment, the wonder workers in saving time and labor in garage and repair shop work.

Every visitor to our exhibit at either show will be given an opportunity to get any or all of the following Manley Machines free of cost:

GARAGE & SHOP Manley EQUIPMENT

One Manley 22-ton Press
One Manley Engine Stand
One Manley 1-ton Portable Crane
One Manley 2-tank Oil Service



These are the prizes we will give in the contests which we will conduct at each show. Every garage or repair man will be given a chance to get the machines he likes best and needs most without the expenditure of any money.

Manley equipment means labor and time saved in garage work. It means money **made** and money **saved,** so be sure and see this line and get a chance on the machines that will be given away.

Our exhibit at New York Show will be located in Space D-198 Fourth Floor, Grand Central Palace.

At the Chicago Show, Space 10-D, in the Coliseum Basement.

United Engine & Mfg. Co.
Hanover, Pa.

4 Manley Wonder Workers Given Away FREE at Each Show

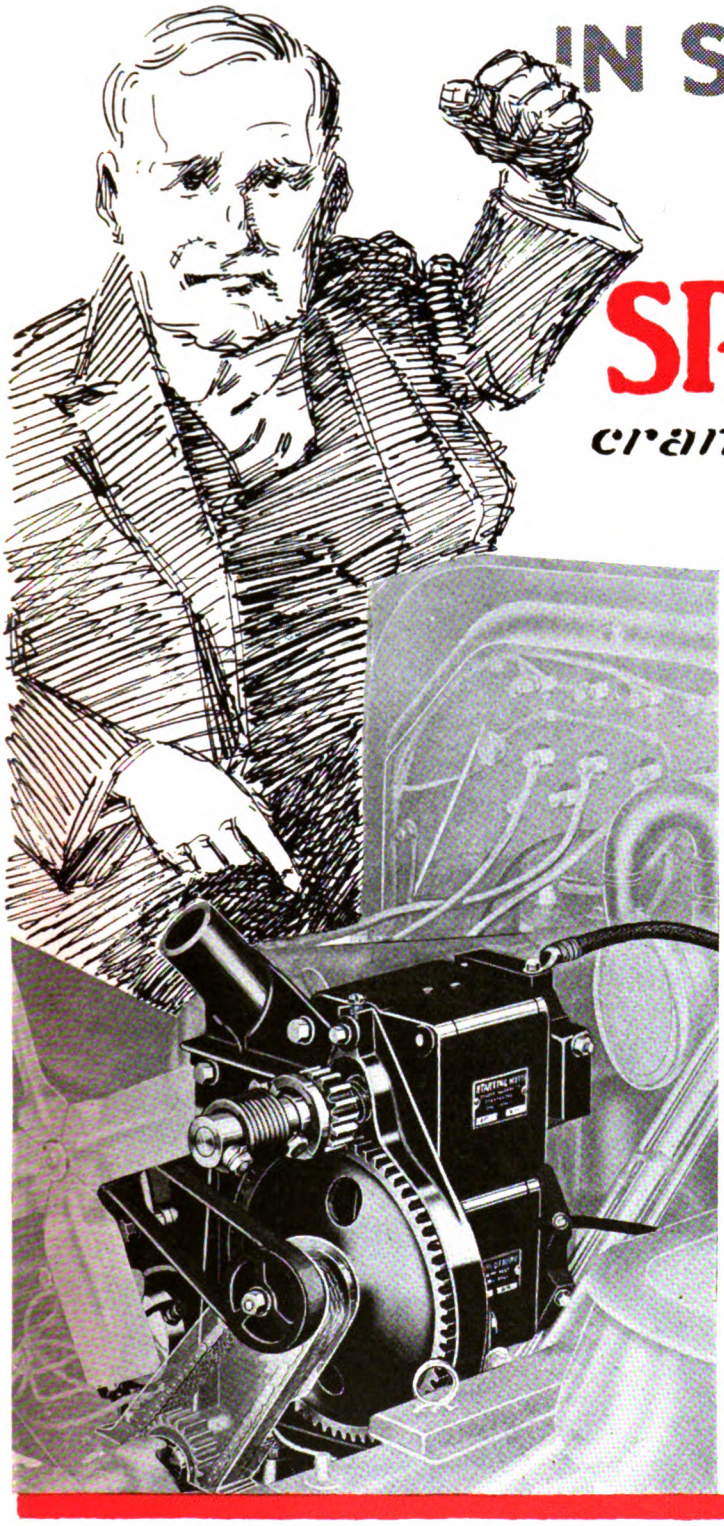
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The "TURNOVER" is there!

IN SALES —as well as in mechanism

HEINZE SPRINGFIELD

cranking & lighting system for FORD cars



Where Dealers are Handling Several Starters The Heinze-Springfield Leads in Sales

Comparative statements from 453 Ford dealers throughout the United States and Canada prove that more dealers are handling Heinze-Springfield than any other one make of starter, *and that dealers handling the Heinze-Springfield with other makes sell far more Heinze-Springfields than any other kind.*

Comparison also quickly *proves the Heinze-Springfield System the greatest value in its field. The proof is in the System—is evident, obvious.* It is the *only* system for Fords selling for $85, complete with Ammeter, Dash Light, Tail Light, Dimmers and Lock.

Scores of letters show dealers strong for Heinze-Springfield. Dealers will tell you that it sells easily, quickly. It has the sales "turnover." It satisfies, has the "stuff" in it, is built *right*. That's why, dealers say, the Heinze-Springfield *sells*. That's why thousands of Ford owners are demanding Heinze-Springfield.

The Heinze-Springfield dealer arrangement is based on our conviction that the desirable dealer should realize worth while profits.

The John O. Heinze Company

Springfield, Ohio, U. S. A.

Tear Out the Coupon and Mail—NOW!

The John O. Heinze Co., Springfield, O.

Please send me Heinze-Springfield literature and dealer proposition.

Name _____

_____

Address _____

_____

_____

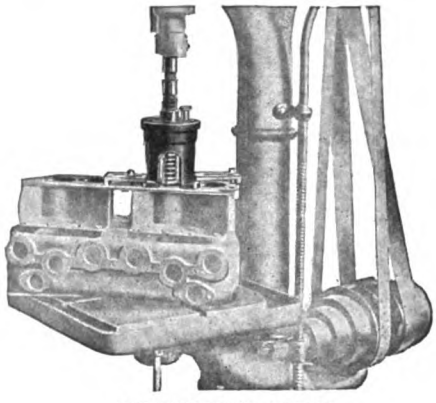
Real Points About the Heinze-Springfield System

1. A Two Unit, Six Volt, Single Wire Cranking and Lighting System, Bendix Drive.
2. Nothing visible with hood closed.
3. No interference with engine accessibility.
4. Installed complete in four hours.
5. No power drain on motor.
6. Patented mounting plate and chain adjustment insures *quietness*. Prevents *broken chains*.
7. Highest *quality*, most *compact*, most *convenient* combination Dash Switch, Ammeter, and Dash Lamp.

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ANNOUNCING THE

"IMPROVED UNIVERSAL" CYLINDER REBORING TOOL

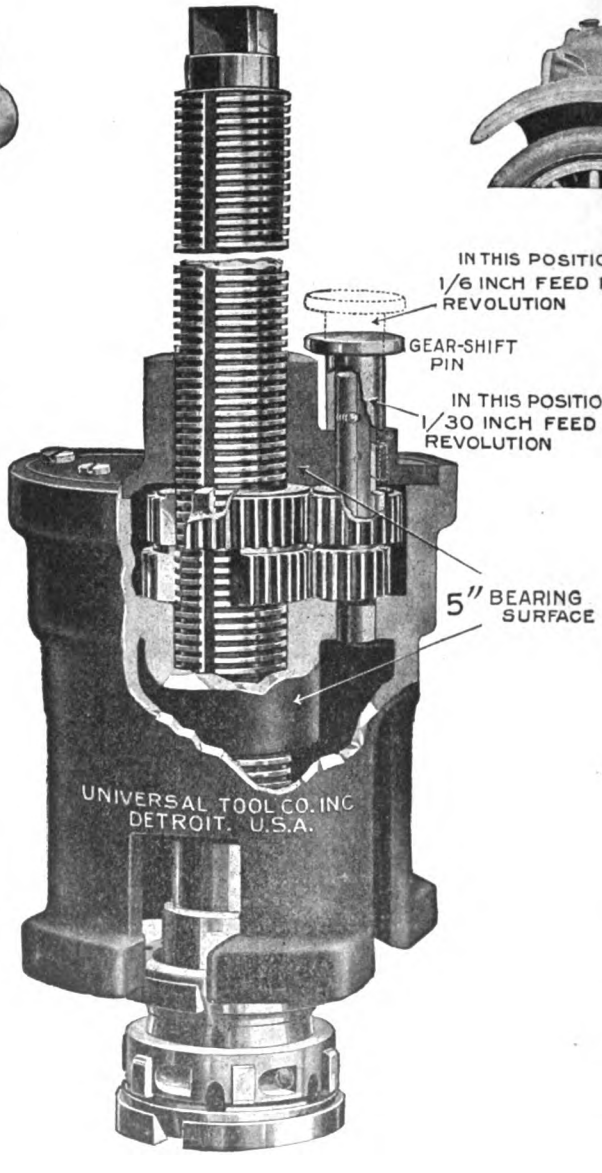


ON THE DRILL PRESS

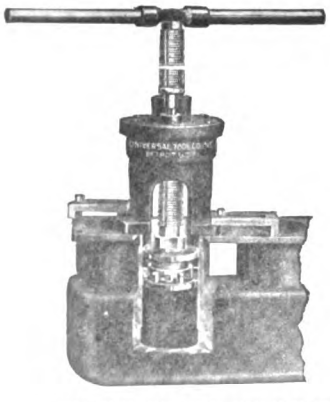


IN THE CAR

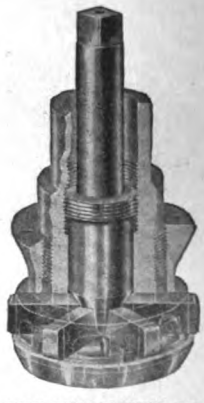
A Tool that will rebore any type of cylinder, open or closed head, is not affected by connecting rod clearance or wrist pin scores



Is recommended for service by a large number of the leading automobile manufacturers



ON CLOSED END CYLINDER



THE SIMPLICITY OF THE UNIVERSAL IS ITS ADJUSTMENT

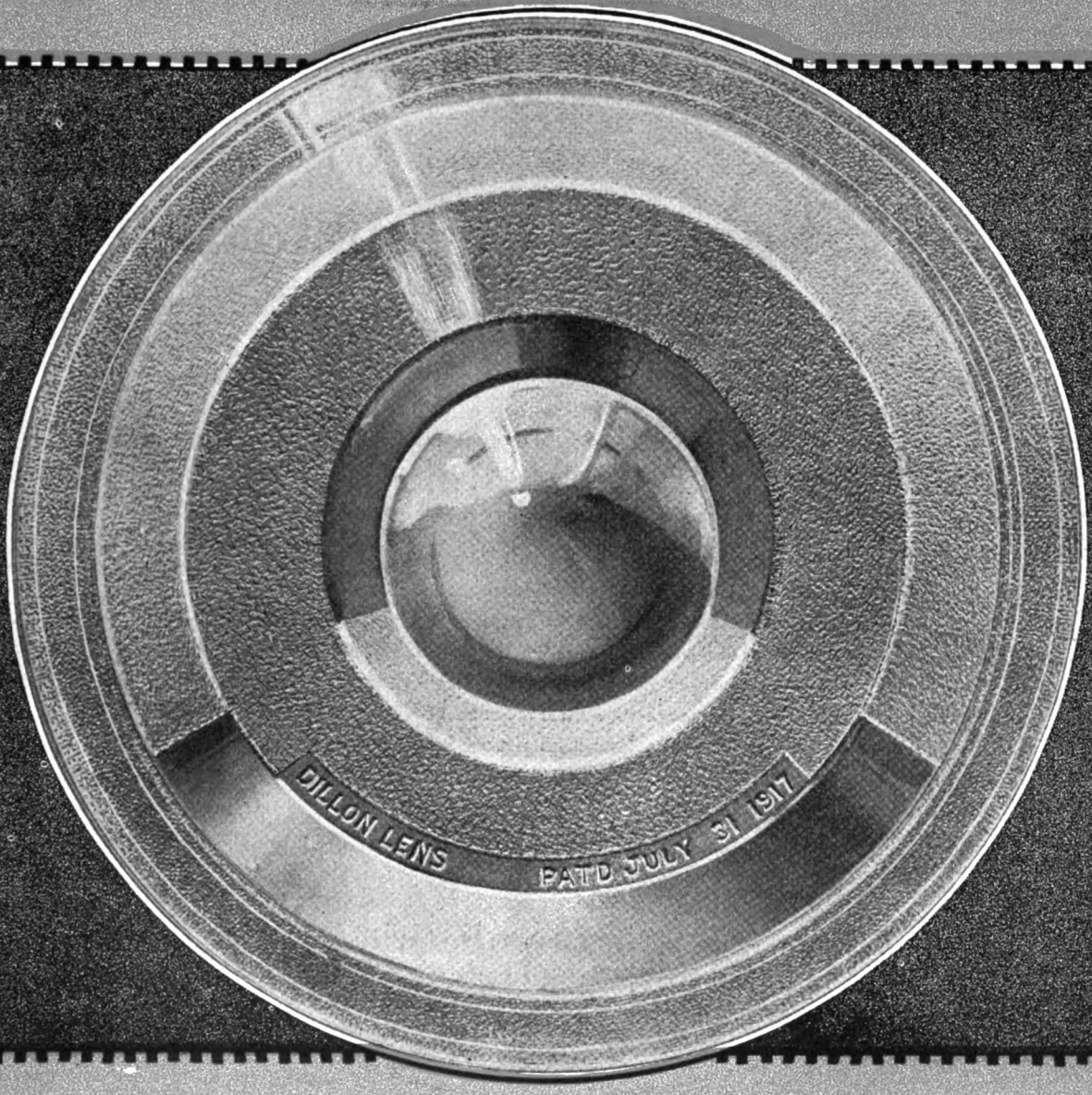
The "UNIVERSAL" CYLINDER REBORING TOOL

UNIVERSAL TOOL COMPANY, Inc.

WRITE FOR CIRCULAR 6 **DETROIT, U. S. A.** ***BUY FROM YOUR JOBBER***

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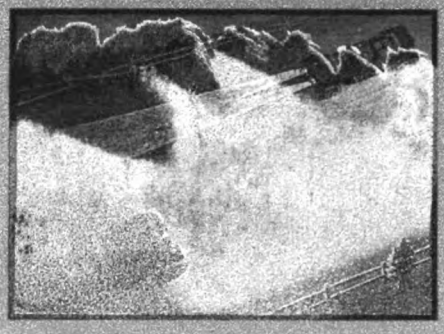
The Lens that Science Built



DILLON

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The Square Path of Light



Twice the Lighted Area

Why You Will Want to Sell the Dillon Lens

The ideal lens is here at last! Not a lens in name, but a lens in fact. Not a mere piece of pressed glass hurriedly marketed to fill a need nor a lens with only fantastic design to distinguish it.

But an actual **lens**—the Dillon Multi-Vision Lens—distinguished by its **performance!**

The Dillon Multi-Vision Lens embodies new scientific principles of illumination. Other lenses cut out glare and cut down light. The Dillon actually **adds** to your field of vision while eliminating glare, because it projects a square path of light instead of a narrow, wedge-shaped beam. Thus, the Dillon Multi-Vision Lens is safe, shadow-free, and glareless. **It does what others claim to do,** yet it costs **less** than many inferior makes. It is easier to handle and easier to sell. All sizes are sold at the same low price, $3.50, **anywhere** in the United States.

Dillon demand is growing, Dillon sales are mounting, Dillon dealers will profit.

Write to The National Distributing Bureau, Inc. for Interesting Proposition

MULTI VISION LENS

Digitized by Google

Millions Will Read



Thousands Will Buy

How We Are Helping You Sell the Dillon Lens

The Literary Digest carries a double-page advertisement, December 29th, shown above. This is the opening gun of a barrage of publicity, sure to create a strong "drive" on lenses. This extensive advertising campaign will cover the country in such publications as the Digest, Collier's, Scientific American and other weekly and monthly journals.

It is not, however, the volume but the **method** that makes Dillon advertising novel. **YOU** will be selling every Dillon prospect because you, Mr. Dealer, will be featured in every advertisement, through the introduction of an original trade character—**Otto Deeler.**


OTTO DEELER

Thus, attention will be focused on your store in a new and refreshing manner. This idea alone will be worth thousands to Dillon dealers.

Write for special proposition. Learn to-day of the many selling helps we give you.

NATIONAL DISTRIBUTING BUREAU, Inc.

EXCLUSIVE DISTRIBUTORS FOR THE DILLON LENS

NDB

240 Oliver Bldg., **Pittsburgh, Pa.**

Dillon Lenses are manufactured by the
DILLON LENS & MFG. CO., Wheeling, W. Va.

DILLON

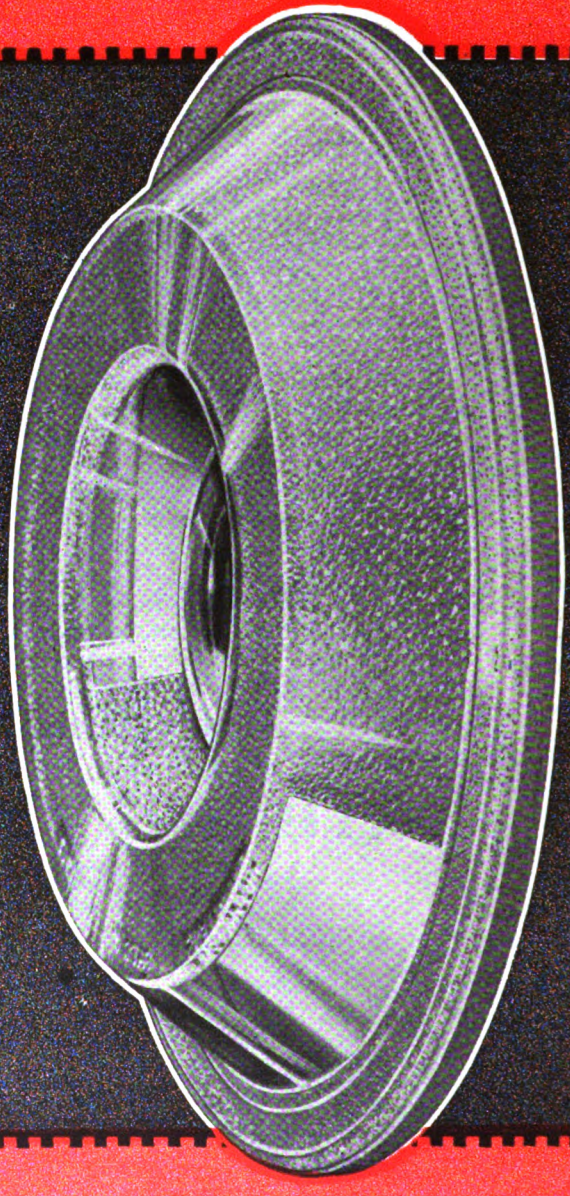
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The Dillon doesn't dazzle

$3.50 PER PAIR

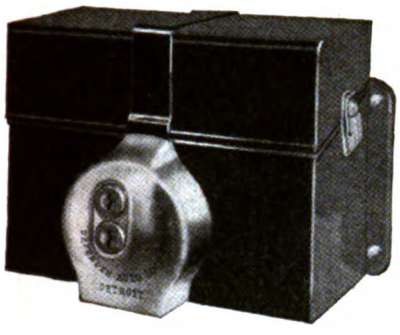
ANY SIZE

Anywhere in U.S.A.



MULTI VISION LENS

Digitized by Google



Locks and protects coil units with hardened steel band. (Patent pending.)

A beautiful, polished, solid aluminum case locks over switch. (Patent pending.)

DEFENDER LOCK *for Fords* $3.50

and costs no more than others

Operates against the ignition by special grounding device. (Patent pending.)

Guaranteed for the entire life of car, and backed by a company fulfilling every sound business principle to the last ditch.

Recognized and used as a standard of perfection by Insurance Underwriters, and saves 15% on insurance.

The DEFENDER Lock is a double protection for Ford cars left at the curb, or in an unprotected garage. Its hold is secure. Yet it in no way changes the equipment, ignition or wiring of the car.

Locks the Ignition Off and the Coil Box Shut

It takes less than 10 minutes to install the DEFENDER Lock on any Ford car. There are no holes to drill or bolts to fasten, and when the lock is on no screws are exposed. It is indestructible, and cannot be broken with a hammer.

No automobile thief—regardless of how well he may know the mechanism of a Ford car—can tamper with this lock and beat it. It is the simplest, yet the strongest lock made. With it more than a million combinations are possible.

The DEFENDER key gives you easy access to the coil box for adjusting vibrators—but this access is obtainable in only one way, WITH THE DEFENDER KEY.

DEFENDER LOCK SELLS FAST

DEALERS know what lock sales are once they handle the DEFENDER. The price is right for Ford cars. The protection is complete. Ford owners demand DEFENDER. Thousands are ready for Spring sales.

Write for free illustrated literature and complete details.

Defender Auto-Lock Co.

Manufacturer of

Defender Locks for Automobiles

506-8 Marquette Bldg., Detroit, Mich.

Canadian Address: No. 3 Ouellette St., Windsor, Ont.

Ford

AUTOMOBILES ACCESSORIES SUPPLIES AND REPAIRS

Ringsrud's Fireproof Garage

A. H. RINGSRUD, PROP

Elk Point, So. Dak.

December 5th, 1917.

The Defender Auto Lock Co.,
Detroit, Mich.

Gentlemen:

Enclosed please find my check amounting to $80.32 to pay your invoice #1524 for $82.80, less your 3%.

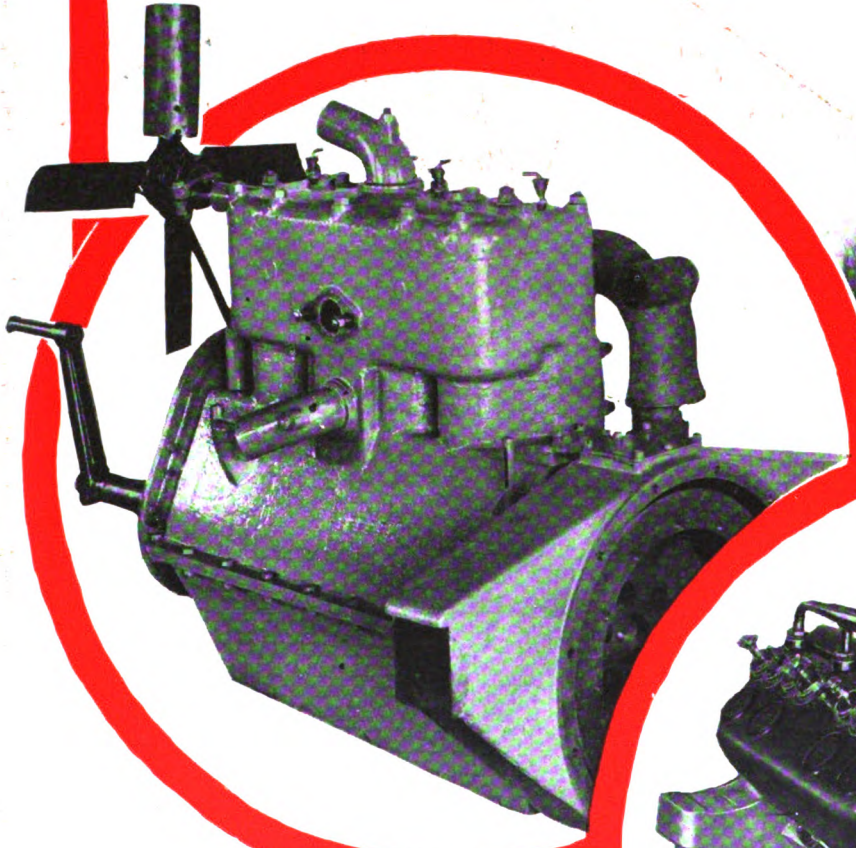
The locks are the best we have ever seen and sell like Hot Cakes. We have handled other locks but have never found one that is as good as yours.

Yours very truly,

Ringsrud's Fireproof Garage,
By _____ Prop.

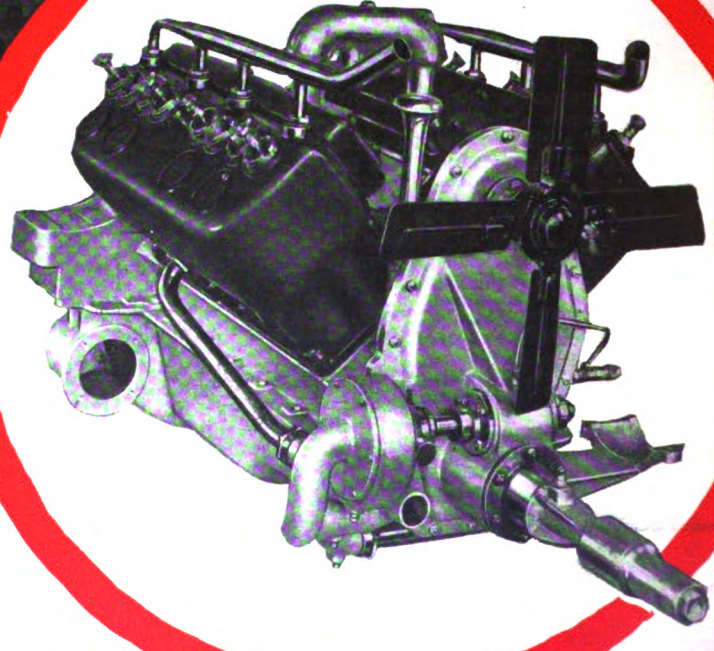
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SPIL



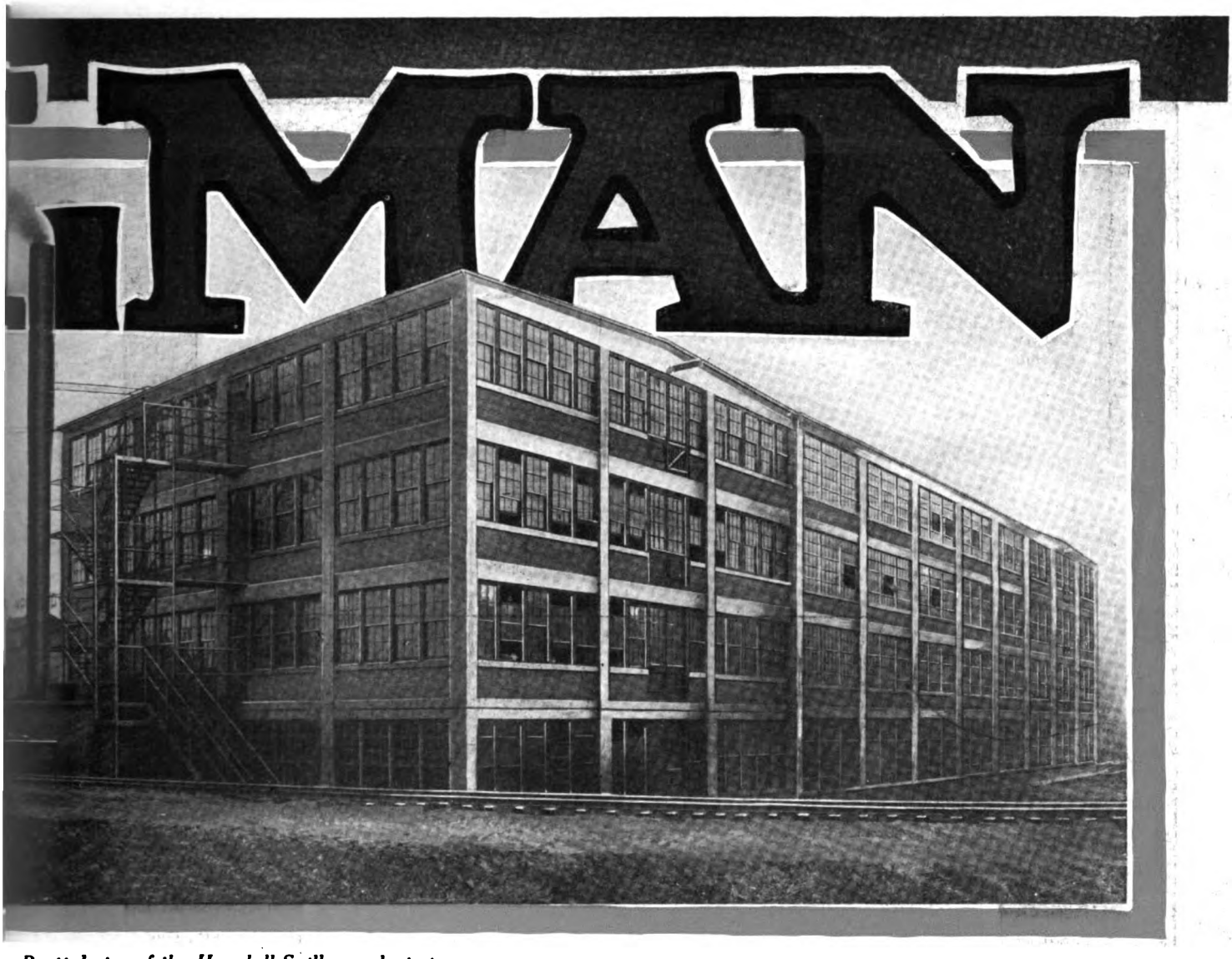


The Spillman "4." For speed, flexibility and hill climbing, unequalled by any other motor in its class



The Spillman "8." This motor has brought the 8-cylinder reputation up to its present high standard of excellence

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Partial view of the Herschell-Spillman plant at North Tonawanda, N. Y. There has been no time during the last 18 months when some new addition to our plant was not under construction

Spillman Motors reflect in full measure today's supreme accomplishment in the development of gasoline engines for passenger cars and kerosene commercial vehicles.

Great power—flexibility—absolute lubrication in Spillman Motors are facts—not approximations.

No disappointments are built into a Spillman Motor

HERSCHELL-SPILLMAN COMPANY

North Tonawanda, New York

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H-M

Adjustable METAL Radiator Cover for All Model Ford Cars

H-M Covers are the sensation of the year in the Ford accessory field. Thousands have been sold—thousands more are being sold. Dealers everywhere are cashing in big on this wonderful cover.

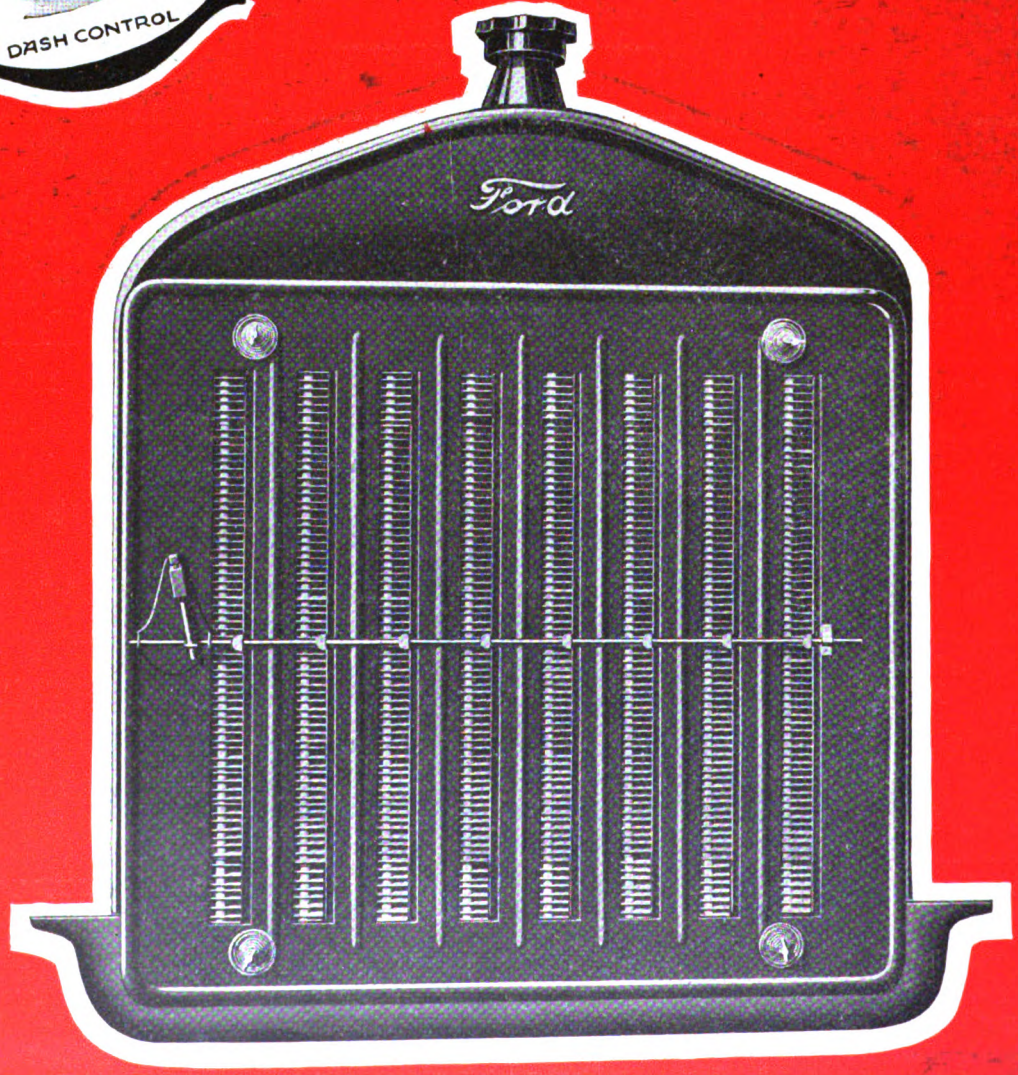
H-M Covers have no equal. They operate from driver's seat with five distinct adjustments. They are made of sheet metal and are practically indestructible. An H-M Cover protects radiator from freezing and bursting, permits cranking the car with the second turn and saves enough gasoline in 90 days to more than pay for it.

List Price $5.00

If you want sure profits—right away—order to-day. There is no better selling radiator cover on the market. Get busy *Now!*

H-M MANUFACTURING COMPANY
122 S. Michigan Avenue, Chicago





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Jobbers - Dealers - Supplymen Get Doc O'Kleen's Prescription *for*

ECONOMY
POWER
Econ-O-Kleen
FLEXIBILITY
CLEANLINESS

The Tonic That Makes Carbon In the Motor Go To Work

Every time a car drives past your door, you know there's carbon accumulating in its motor. Sooner or later it has to come out. **Getting it out** is business for you, but——

Keeping it out is better business, with more satisfactory results and bigger profits. Getting it out and keeping it out, both, with ECON-O-KLEEN pays.

ECON-O-KLEEN SELLS BECAUSE IT COSTS LESS. **$1** buys a can that treats 112 gallons of gasoline. And another $1 buys another as soon as that's used up. It's **continuous profit** for dealers—because it's continuous saving for users.

ECON-O-KLEEN is on the automobile market today because it couldn't be kept away. Originally produced for private use on a gasoline-electric railway, it forced its way into the automobile field, where, without a line of advertising.

$1 *Costs Less*

Per Can



Does More

800 Cans Have Sold Themselves In 6 Weeks

Now the intensive advertising campaign is on. Present capacity is 1000 cans a day—with a liberal, easy, repeating profit in every can.

Use the coupon now. Get old Doc O'Kleen's Prescription Today. GUARANTEED non-injurious. Money back if not as represented.

Econ-O-Kleen Fuel Co.

Thief River Falls
Minnesota

ECON-O-KLEEN FUEL CO., Thief River Falls, Minn.
Send me complete information and free illustrated literature explaining every reason and use for ECON-O-KLEEN. $1 enclosed is for trial can of ECON-O-KLEEN. Money back if not satisfactory.
Name .....
Address .....
Check here if you are a dealer ☐ jobber ☐ or supply-man ☐ for confidential discounts.

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Six Good Reasons Why This Station is Popular

Four of them are living, human examples of woman's progress and of the new conditions in industrial life created by the war. Two are the big, handsome, fast

Guarantee Visible Pumps

These, too, are symbols of progress—in the business of serving the motoring public. Visible measures are the only devices for dispensing gasoline and oils that have met the new conditions.

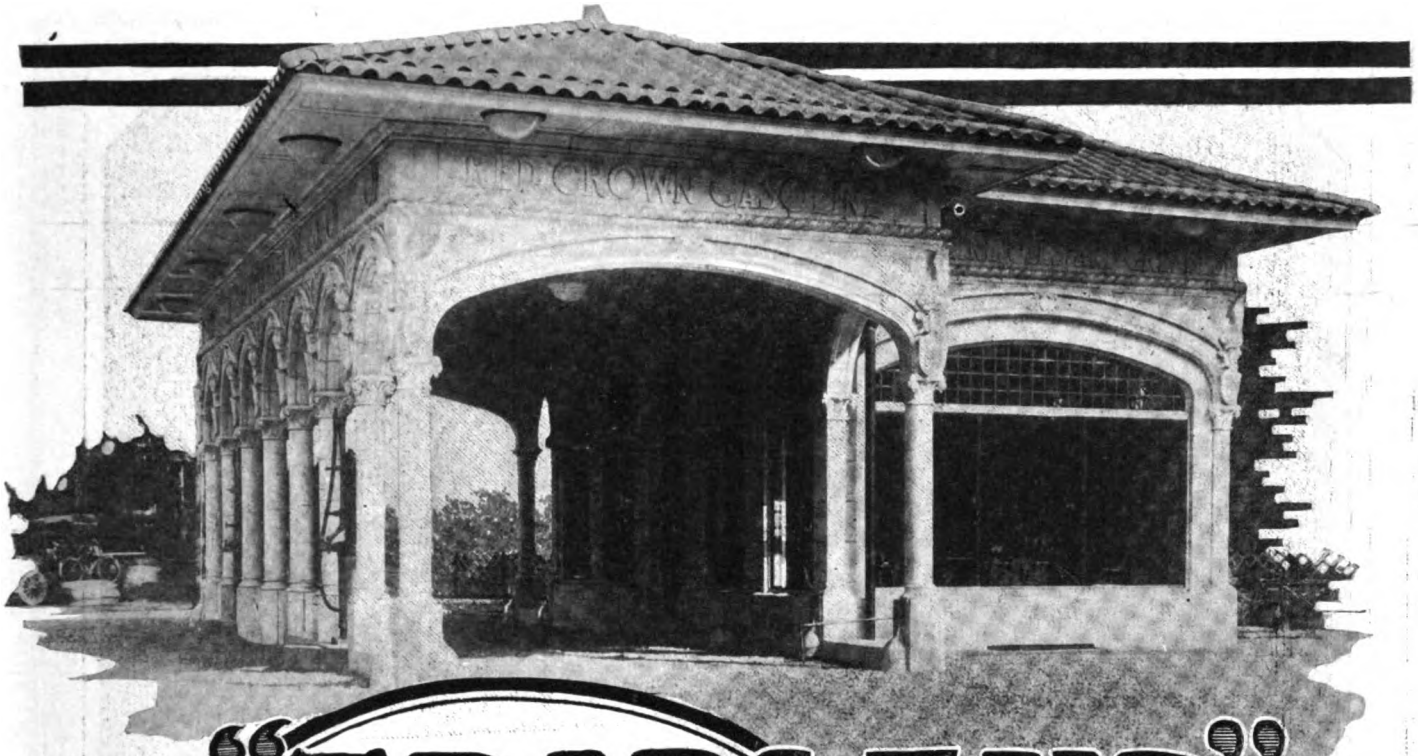
The Guarantee Visible pump, because of its electric vacuum lift, is the only one that women can operate. It is the pump that is replacing all the old-fashioned "blind" types.

SEE EXHIBIT AT THE NEW YORK SHOW

GUARANTEE LIQUID MEASURE COMPANY

Farmers Bank Building, Pittsburgh, Pa.

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"TRIPLEXD"

THESE TWO OHIO STATIONS have joined the No-Trouble League—which, in plain business English, means using pumps equipped with Triplexd Gasoline Hose

IT'S A GENUINE PLEASURE to use a hose that doesn't have to be handled and watched like a sick child. Here's a hose that can tie itself into a dozen knots with never a kink, and come out of the ordeal as sound as it went in. Ever try it with the *other* kind?

USE TRIPLEXD as hard as you want and it will be giving as good service the next year as it did the first day—without a sign of rot, crack or leak. Three layers tell the story: a metal tube inside, gasoline rubber over that, and then an outer casing of tough woven fabric—all so closely joined as to form practically a single unit. It's impervious alike to weather, chemicals and manhandling.

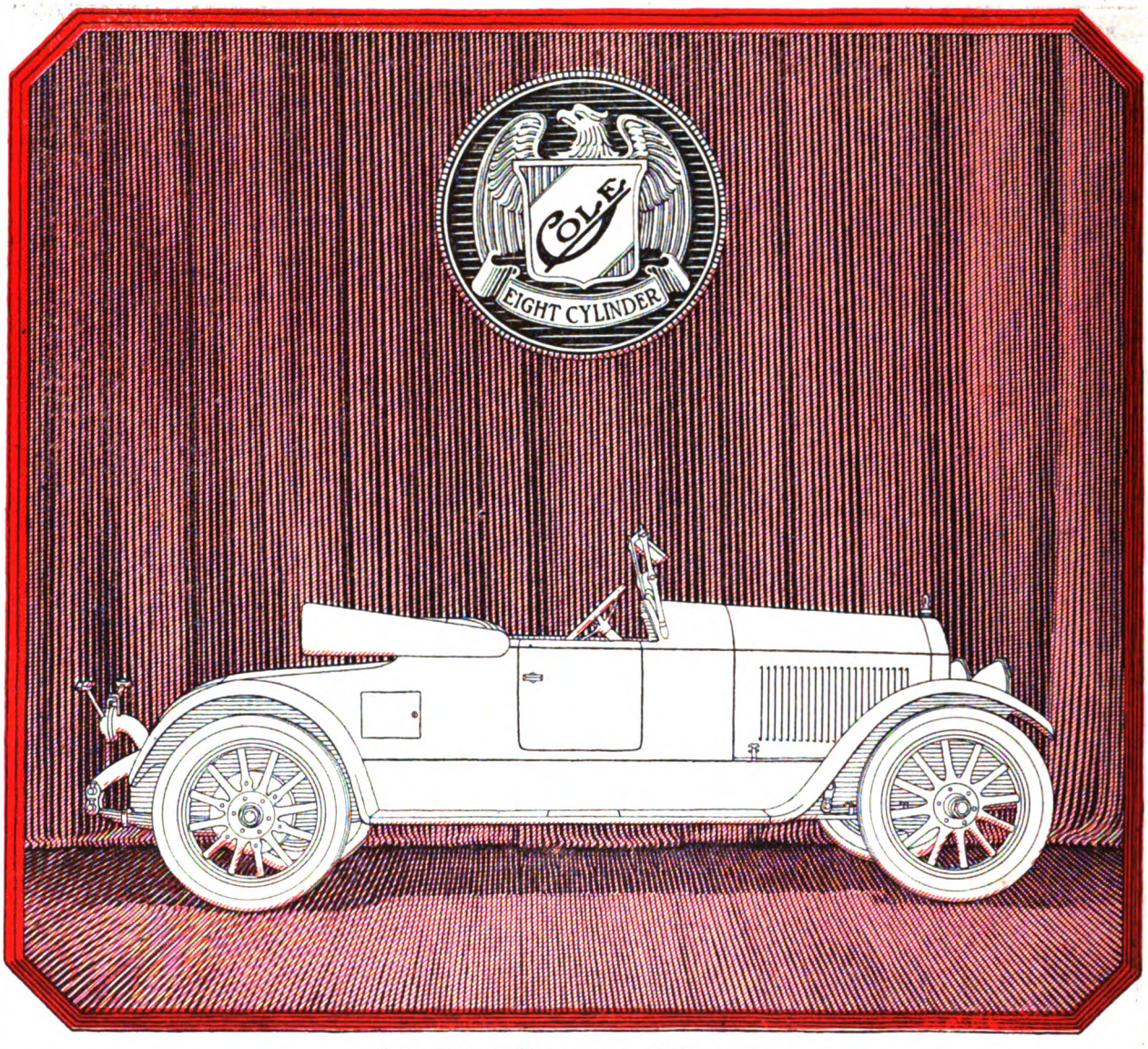
Triplexd has a one-year guarantee, and invariably outlives it several hundred per cent. That's ***service!***

Get in line for low upkeep and no trouble, by specifying Triplexd on your next pump outfit.

METAL HOSE & TUBING CO.
INCORPORATED
RAYMOND & TILLARY STS.
BROOKLYN, N.Y.



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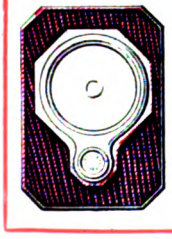


COLE EIGHT ROADSTER—MODEL 871

Three COLE EIGHT *Models that Create a New Vogue*

Keen followers of the most advanced ideas in automotive design are enthusiastic in their endorsement of the seven-passenger Tourster, four-passenger Sportster and two-passenger Roadster which have just been added to complete the Cole Eight line.

Their lithe, dashing lines are due to the new Aerotype Bodies, with high cowls and low, gracefully beveled sides—the latest and greatest creations of Cole craftsmanship.

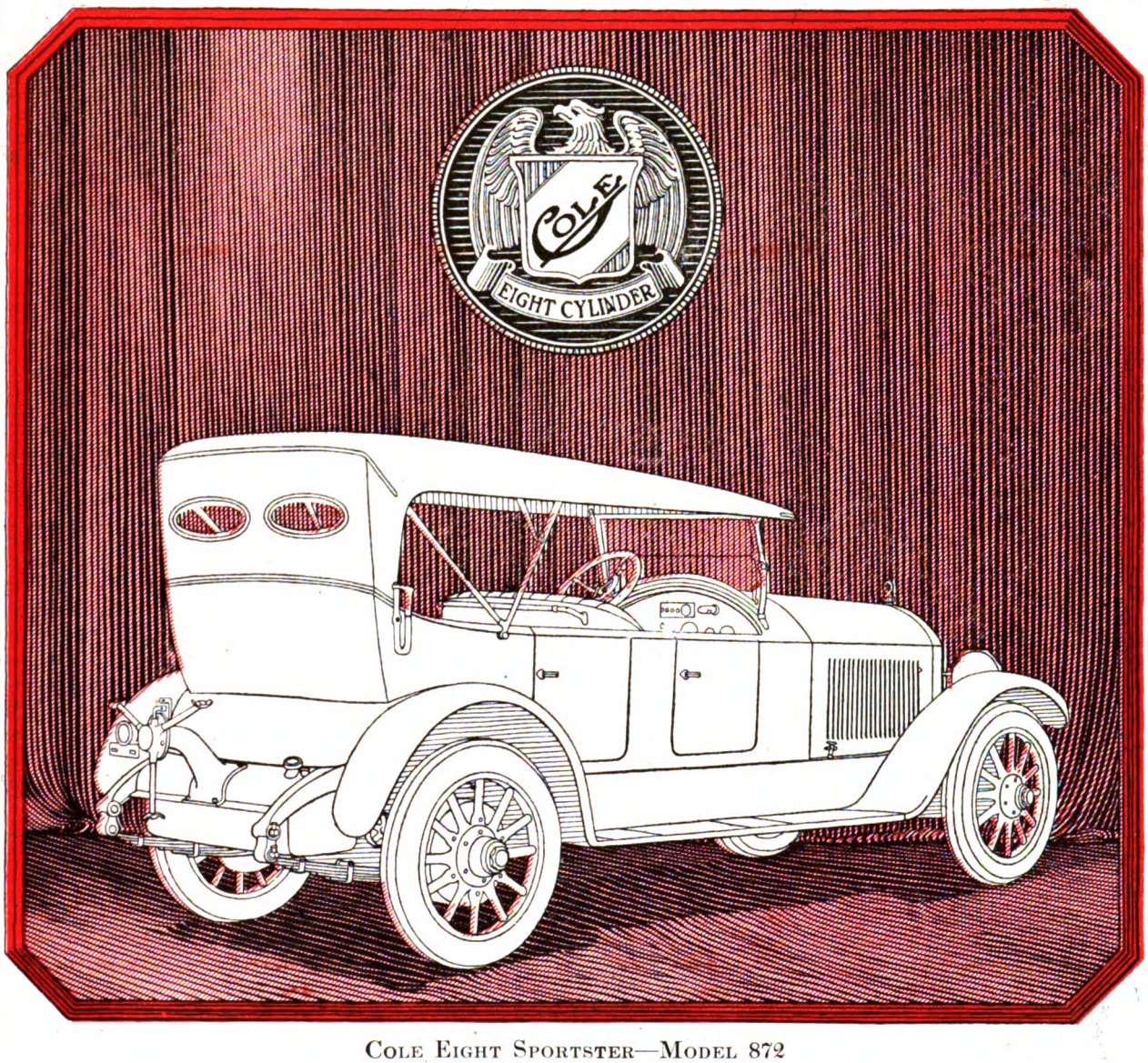


Model 860 Touring Car—$1995; Model 861 Tuxedo—$1995; Model 863 Tourcoupé—$2495; Model 864 Four-Door Toursedan with divided or solid front seat—$2595; Model 865 Four-Door Toursedan with solid front seat, removable partition, and dictagraph—$2695; Model 866 Four-Door Toursedan with partition, dictagraph and seats for six in tonneau—$2795; Model 870 Tourster—$2395; Model 871 Roadster—$2395; Model 872 Sportster—$2395

All prices f. o. b. factory and subject to change without notice



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COLE EIGHT SPORTSTER—MODEL 872

Meet Every Desire for Greater Utility and Exceptional Beauty

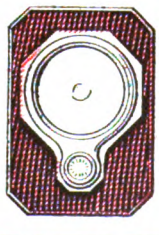
No matter how widely diversified motor car wants are, the Cole line has a car to meet them.

By adding three new innovations to the present comprehensive line this company now offers a choice of models covering a wide latitude.

Those who appreciate the extraordinary in motor cars will find, in the Cole's augmented assemblage of more useful and more beautiful designs, the fulfillment of their own ideals.

Tried and true in rugged sturdiness and perfect performance, the standard Cole Eight chassis, entering its fourth consecutive year of tested superiority, will be used on the seven-passenger Tourster, four-passenger Sportster and two-passenger Roadster in addition to all other models.



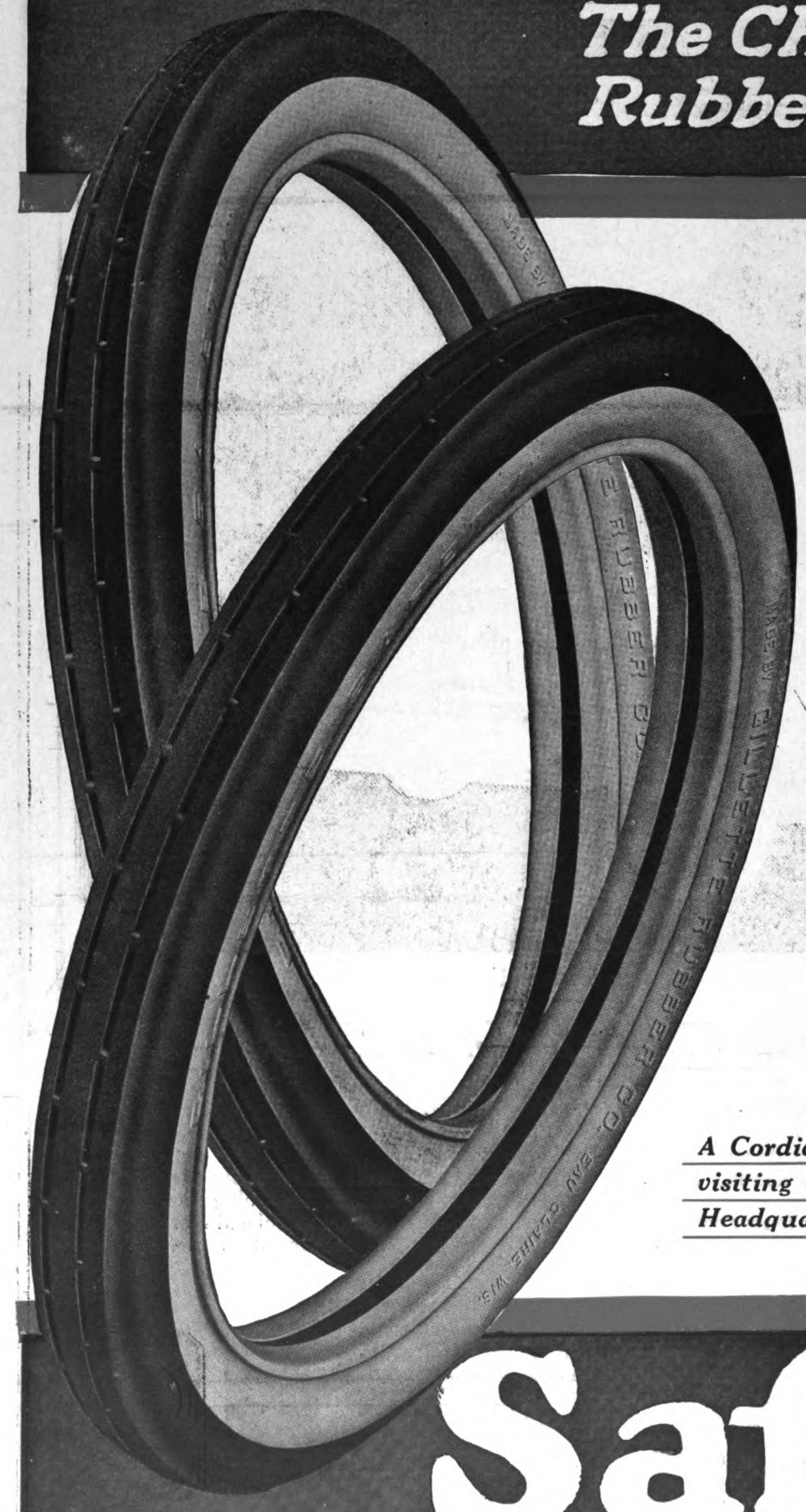


COLE MOTOR CAR COMPANY

Indianapolis, U. S. A.

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The Chilled Rubber Process



THE GILLETTE CORD TIRE IS THE LONG DISTANCE CHAMPION. That it has won this title on the roads is due to unusual laboratory work.

THE "CHILLED RUBBER PROCESS," exclusively used in the manufacture of Gillette Tires, has made the Gillette fabric-tire vastly superior to other fabric tires because of the remarkable *wearing* qualities this process puts into the rubber used. It has made the Gillette Cord Tire superior to all other tires because it adds this remarkable rubber to the well known strength and wearing qualities of the best cord construction.

EVERY BIT OF RUBBER USED in every Gillette Tire—of either cord or fabric construction—has a toughness, a tensile strength, an elastic, lively, non-tearable, long-wearing quality that is new in tire making. It is a quality produced by the "Chilled Rubber Process," and by no other known means.

During Show Week

A Cordial Invitation is extended to Dealers visiting New York to make our Office their Headquarters while in the city.

Safety

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Gillette

The Best Tire Proposition for 1918

A Tire Unique in the Industry—Large National Distributors of Established Reputation—Wide Advertising Generally and Locally—Extraordinary Sales Helps—A Dealer Contract That Gives That Freedom of Action and Certainty for the Future Which Allows the Progressive Wide-awake Dealer to Get Maximum Results.

THE BEST WEARING TIRE

The Gillette will be the most talked of tire of the 1918 season. Its actual record on the roads has already made it the subject of enthusiastic comment. The extraordinary quality of its rubber, due to the "Chilled Rubber Process," has marked a very definite advance in tire manufacture.

Its remarkable wearing qualities have thrown guarantee adjustments into the discard. The fact that *every* Gillette Tire will deliver *more* than its warranted mileage under any treatment short of actual abuse puts the tire user on a new basis of tire expense. He will count his tire costs by the mile, by the month and by the year. And on this basis the Gillette will win every time over tires that, while cheaper in price, are far more costly in actual practice.

THE BIGGEST PERMANENT BUSINESS

The Gillette Dealer is actually part of the Gillette organization. While preserving absolute independence in the administration of his own territory and an absolute, untrammeled right to the profits of that territory for the future, the Gillette dealer is backed by all the force at our command in the solution of every sales problem that confronts him.

We help him generally by making the best tire possible of manufacture, by wide advertising of a constructive, educational character; and we help him specifically by local advertising, by real sales helps which are plainly printed on his contract so that he may select those best suited to his own particular needs, and by giving him prompt, efficient service, and staunch, generous backing in his relations with his customers.

If you are a Responsible, Progressive Dealer who wants the very best opportunity for Freedom of Action, Good Profits and a Permanent, Growing Business, write us at once.
Your Territory may Still Be Open.

THE GILLETTE RUBBER COMPANY

Chicago Office
122 Michigan Ave.

General Sales Office
1834 Broadway, New York

Factories
Eau Claire, Wis.

Tires

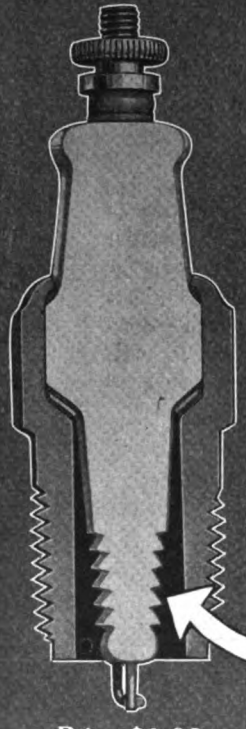
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Announcing The New A.C. Carbon Proof Spark Plug

Here is the first plug made which will not accumulate carbon! It will permanently rid motorists of that trouble which has been their bugbear in the past.

This New AC has been tested for a year on a number of cars and tractors using both gasoline and kerosene in which ordinary plugs would "soot up" rapidly. The perfect results obtained by this new AC have exceeded our highest expectations.

At Last Ford, Overland and Studebaker owners—this is the plug you have wanted to keep your motors hitting on *all* cylinders *all* the time.



Price $1.00

The Reason

A deposit of carbon on the smooth surface of the porcelain is what causes short circuit. In this new AC plug the carbon proof porcelain is provided with a number of ribs having saw tooth edges. These attain a sufficiently high degree of heat to burn away the carbon thereby keeping the edges free from deposits and breaking up any possible short circuit.

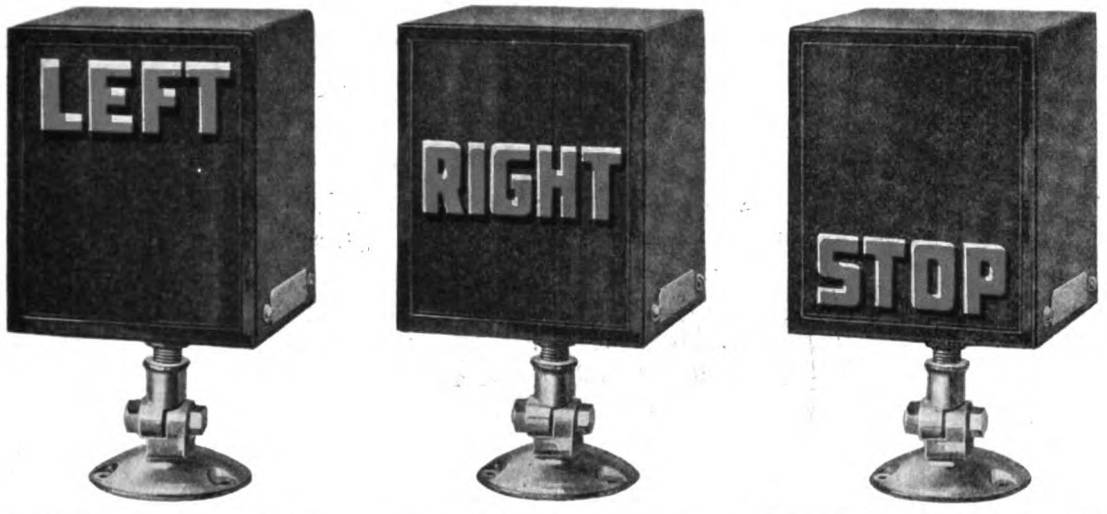
Dealers: To secure your share of AC Carbon Proof business, order now and be sure of quick delivery.

AC The Standard Spark Plug of America

CHAMPION IGNITION COMPANY

Sole Manufacturers Flint, Michigan

Digitized by Google



SMITH AUTO SIGNAL

The SMITH AUTO SIGNAL is the most practical and efficient safety device ever offered the automobile owner. It is now in service on hundreds of cars and trucks.

It is conspicuous from the front and rear. It is electrically operated from a switch on the steering wheel. It thus prevents the frequent accidents, caused by removing the hand from the wheel at critical moments. Most automobile accidents are due to the lack of knowledge of what the "other fellow" intends to do.

The Smith Auto Signal is NOT AUTOMATIC. It signals only when you want it to, giving definite information and warning when needed in ample time to guide both those in front and those in back of you. Thus a safe, comfortable feeling is given to the driver.

This signal is not an experiment. The success and absolute reliability of the many now in use have proved its great value. It puts you in good standing with policemen and traffic authorities.

The Smith Auto Signal is very simply constructed, has no moving parts to get out of order. It makes automobile driving safe at all times as the words LEFT, RIGHT or STOP are clearly discernible day and night.

A splendid proposition is offered dealers. Dealers are selling these signals by setting them up where customers can see them.

They attract instant, favorable attention and sell with little effort on the part of the dealer. Can be attached to a car in a short time.

We will exhibit at the New York Automobile Show, January 5-12. Booth D11, 4th Floor.

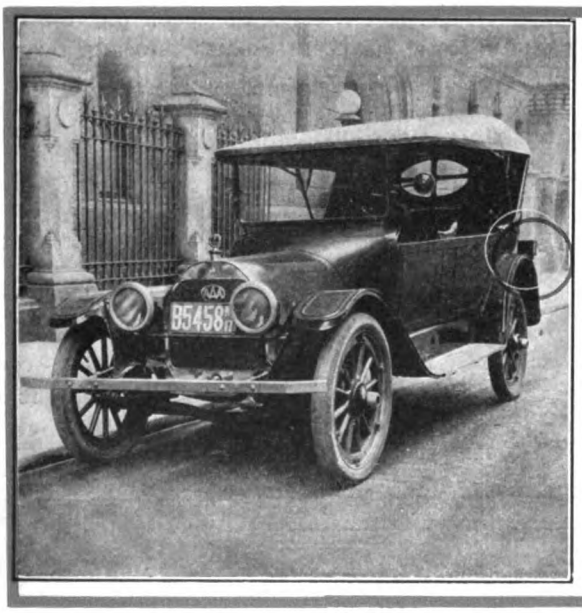
Write at once for generous terms and full particulars

Retail price complete $17.50

SMITH SIGNAL CORPORATION

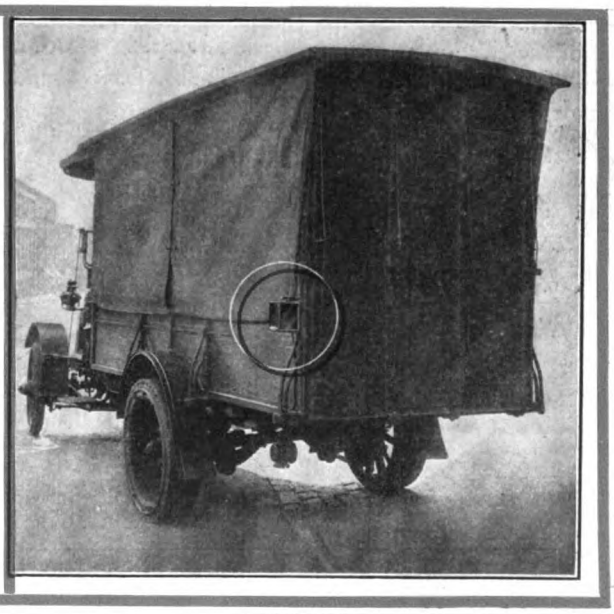
53-55 West 66th Street **New York City**

Safety First for the Man Ahead



Easily Seen from in Front

Safety First for the Man Following



—or Behind

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Profit For the Wide-



The Rie Nie Auto Patch

The Rie Nie Auto Patch is a quick and everlasting repair for pinhole punctures or 18-in. blowouts—easily applied in two minutes without the use of heat or tools and will outwear the tube itself. The patch will never pull off because it is

Vulcanized to the Tube by the Heat of the Road

It becomes the strongest part of the tube. The stout khaki fabric which backs the layers of raw and cured rubber is a big factor in making it so strong and serviceable. Absolutely air-tight. Vulcanizes without danger of overcooking the rubber. Handy, quick-acting—the ideal first aid kit for every motorist.

Small size (36 sq. in.), $0.50; large size (108 sq. in.), $1.00; shop size (648 sq. in.), $5.00.



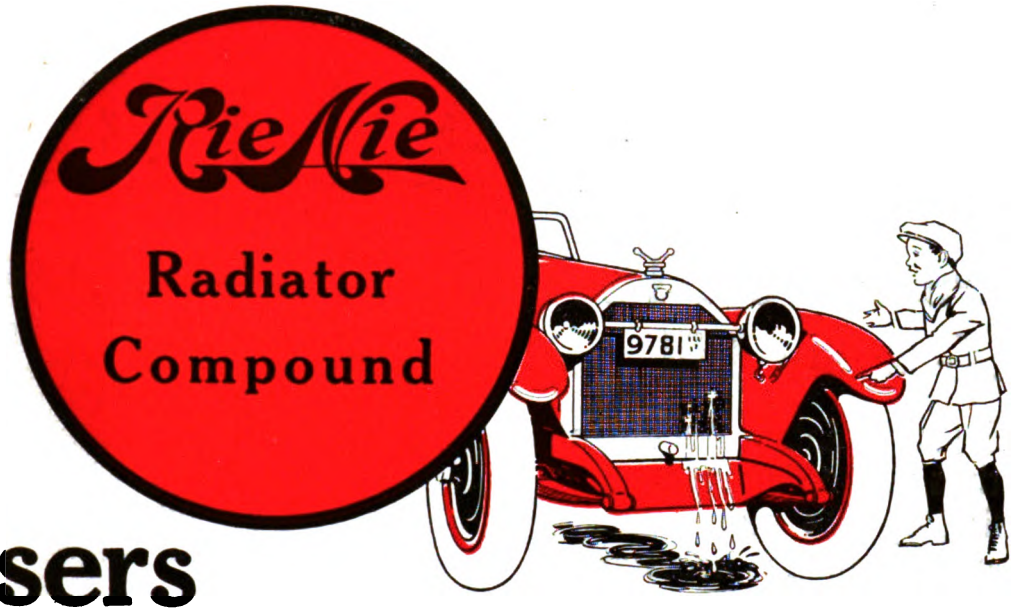
These Rie Nie Remedies

Because of the government demand on car manufacturers this coming year, there will be fewer new cars on the market. For economy's sake, many owners will make their old cars do for another season by painting and retouching where necessary.

Live dealers, to meet this demand, should have in stock such articles in the Rie Nie Line as the Rie Nie Painting and Refinishing Outfit, with which a car owner

DURKEE-ATWOOD CO.
MINNEAPOLIS, MINN. U.S.A.

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Raisers Awake Dealer

Rie Nie Radiator Compound

Rie Nie Radiator Compound finds the leaks and mends them. It is a powder which dissolves in the warm water in the radiator and solidifies as it passes through the leak into the air, making a permanent repair in any part of the cooling system.



Rie Nie Radiator Fluid

Prevents the forming of new leaks and keeps the entire cooling system free from rust and scale. Insures efficient cooling at all times. It will also mend old leaks, being preferred by some motorists to the powdered compound.

Rie Nie Radiator Compound, per pint, $0.50.
Rie Nie Radiator Fluid, per pint, $0.60; per quart, $1.00.



Should be on *Your* Shelves

can refinish his entire car—Rie Nie Black Enamel, Rie Nie All-in-One Dressing, Rie Nie Leather Dressing, Rie Nie Top Lining Dye, Rie Nie Mohair Dressing, Rie Nie Mohair Cleaner, etc.

Write for our complete catalog of chemical accessories, or see our catalog in the Automobile Trade Directory.

Live, wide-awake dealers should make their stock meet the public's demand.

DURKEE-ATWOOD CO.
MINNEAPOLIS, MINN. U.S.A.

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SCHRADER

Cut Down On Your Tire and Gasoline Bill

UNLESS you maintain the air in your tires at the right pressure, you are using up 50% more rubber and 25% more gas than is necessary.

Pump up your tires every time they fall below the pressure specified by the tire maker.

Don't say it's too much trouble.



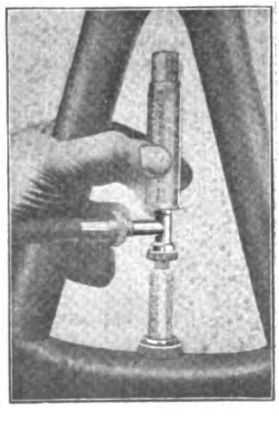
WITH A

Schrader Universal Pump Connection

it is no trouble at all.

You can't tell how many miles your tires can give you until you put them on a regulated, measured air diet.





Use a
Schrader Universal Pump Connection
and a Schrader Universal Tire Pressure Gauge
(PRICE IN U. S. A. $1.25)
AND GET 100% MILEAGE OUT OF YOUR TIRES

Send for illustrated booklet, supplied for distribution to dealers with name imprinted

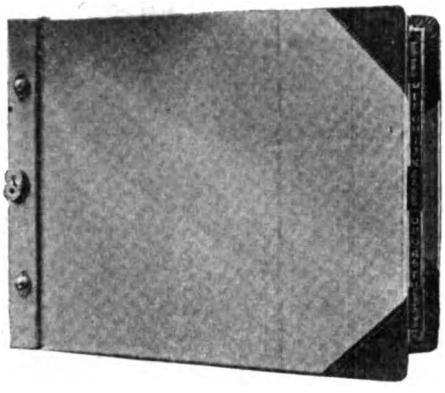
A. SCHRADER'S SON, Inc.

783-803 Atlantic Ave., Brooklyn, N. Y.

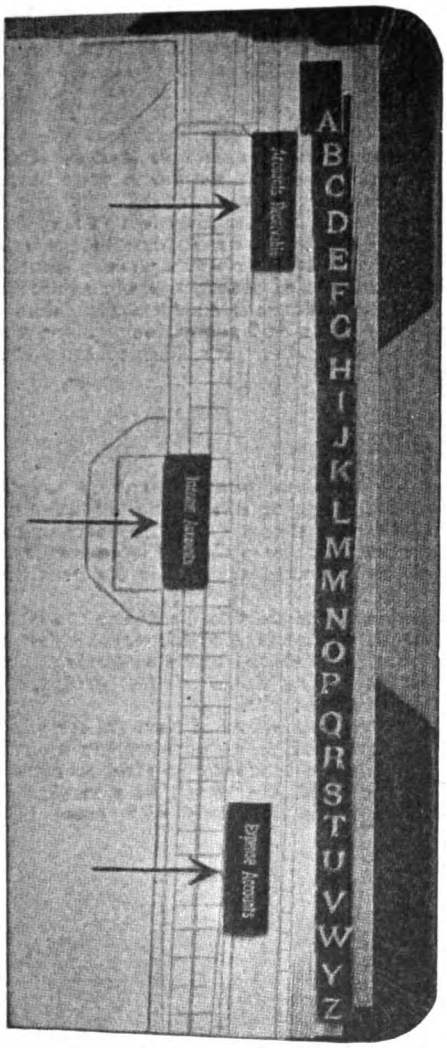
LONDON CHICAGO TORONTO

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Do You Know Just Where You Stand Financially?



THE ONLY BOOK needed in the System. Size 14½x11½ in. Picture below shows index division tabs under which entry forms are filed. Only three forms used. Quick, simple, easy to understand.



—are you making money or losing money?
—just how much are you ahead or behind?
—what part of your stock or shop is making and what part losing?

IF YOU CAN'T ANSWER THESE QUESTIONS right off the bat fill out coupon below and learn how to answer them quickly and exactly *at any time!*

EVERY LITTLE BIT HELPS IN THE WINTER! Losses and discrepancies that do not count for much in summer, when big profits are coming in, are drags on you during the lean winter months.

Motor World's Simplified System of Accounting

HERE IS THE CHEAPEST, SIMPLEST, AND SUREST METHOD of finding and stopping losses; of keeping your mind perfectly clear as to your financial status; of checking up purchases, sales, and stock on hand.

YOU CAN TURN LOSSES INTO PROFITS, if you know just why and where they occur.

YOU DON'T HAVE TO BE A BOOKKEEPER or a financial shark to learn or to follow this system. It is simple as A, B, C. A book containing all instructions accompanies it. You can start and run it yourself, or *any man* in your garage or shop can do it.

SENT ON 5-DAY APPROVAL. Get it, look it over, and if you are not satisfied with it, send it back and your money will be refunded.

DON'T LET ANOTHER DAY PASS WITHOUT IT. You can get the whole thing for $15, and it will save you that much in the first month you use it.

OVER 1500 GARAGE, REPAIR AND SUPPLY MEN ARE USING IT NOW—with splendid results.

TALLMAN, ROBBINS & CO.

Exclusive authorized manufacturers of Motor World Simplified System of Accounting

314 W. SUPERIOR ST., CHICAGO

New York, 320 Broadway

TALLMAN, ROBBINS & CO.
314 West Superior St., Chicago

Dear Sirs:

Ship me complete "Motor World Simplified System of Accounting" with Book of Instructions. I enclose $15, in full payment with understanding the same will be refunded if I am not satisfied and return the System within 5 days.

Name .....

Street and Number .....

City and State .....

12-26-17

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The Carcass

THE outstanding feature of Amazon Supertires is the reinforcement for protection against blowouts. This is an extra fabric "breaker strip" built into the side walls of the tire; the place where the "traction wave" is generated and where the tire is continually flexing. This side breaker strip binds the tire together, prevents the side walls from overstretching under excessive load or strain, which would so stretch and weaken the fabric as to loosen the plies, resulting ultimately in a blowout.

You know that reinforced construction is stronger than ordinary construction—and Amazon Supertires are reinforced and doubly strong where blowouts usually occur.

The carcass is a vital part of a tire, and the reinforced strength of the Amazon Carcass is absolute assurance of long mileage, perfect service and protection against tire-destroying blowouts. Only the very best of long fibre Sea Island fabric is used.

The Tread

THE tire has a vibrationless, non-skid rolling tread—non-skid without a dragging effect—the smooth, narrow center rib is the part that travels the road in fair weather, but when muddy or "heavy" road is encountered, the side "hooks" placed opposite each other dig in with a deep, traction-assuring hold.

The tread has also been designed to distribute the stress of road shocks over the entire face of the tire, so that no one spot in the carcass takes all the brunt of driving. This eliminates premature breaking down of the carcass, and adds greatly to the life of the tire.

The tread is a velvety composition of pure rubber which will run four to five thousand miles without any appreciable signs of wear. It has a tendency to yield to a bump or stone—and will not resist the shock in a manner to cause a stone bruise, as is the case with most tires.

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Amazon Supertires are non-blooming—will always retain their attractive glossy black color—something very much desired by the tire user.

The tire as a whole is so firmly welded into an integral unit that it is practically impossible to strip back the tread or pull back the plies on a cross section. This super carcass strength and the wear resistance of the tread are an assurance of doubly long mileage at absolutely the lowest cost.

Amazon Supertires are also made with the popular ribbed tread.

Appearance

The Amazon Supertire is handsome—distinctive.

THE jet black body with the snow-white stripe on the sides is characteristic of the quality of workmanship and materials entering into the tire, and adds the final touch of distinction to the most elegant car.

TO a few more discriminating dealers, in open territory, The Amazon Rubber Company is prepared to offer exclusive selling rights and a most interesting proposition.

The tire sells easy, and repeats; we pay for ALL the advertising, over your name, in your own territory; our present dealers tell us that our co-operation, methods, policies and treatment are the fairest, squarest and broadest they have ever known. Amazon Dealers all over the country are building permanent businesses.
Write for our proposition and see us at the New York and Chicago shows.

The Amazon Rubber Company
AKRON, OHIO
New York Branch, 218 Amsterdam Ave.

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National

Airplane Type Motor

Full Usefulness the Year 'Round

No car has done more to make year 'round motoring permanently popular and practical than this new twelve-cylinder National Touring Sedan.

Whether used as an open summer vehicle or a closed winter equipage, it is equally serviceable and satisfactory.

It combines the elegance and comfort of the fine closed body with the ability and range of a touring model.

Its powerful and energetic twelve-cylinder airplane type motor makes it as capable for cross-country driving as for dignified city use.

This new twelve-cylinder National Touring Sedan is a big car, accommodating seven passengers, yet it is easy to drive and economical to own.

Positive control at every speed, perfect balance, a short turning radius and extreme ease of handling make it a favorite with the owner-driver, whether man or woman.

It is an exceptionally beautiful car, very carefully built throughout, and its gasoline and tire mileage are surprisingly high.

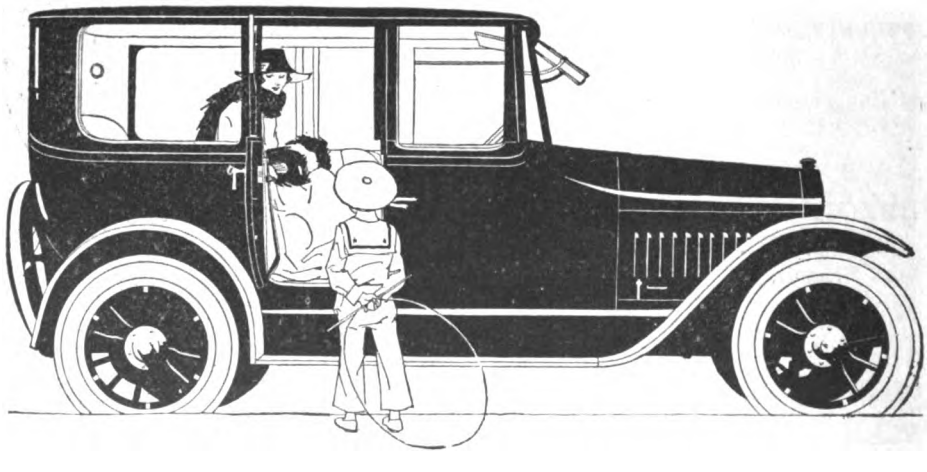
To the dealer who realizes how vitally true value bears on his future, it offers an opportunity that cannot be disregarded.

Complete Range of Body Styles in Both

Six and Twelve Cylinder Models

7-Passenger Touring Car, 4-Passenger Sport Phaeton, 4-Passenger Roadster, Convertible Sedan
The Six Sedan $2820, The Twelve Sedan $3420. Open Car Prices—The Six $1995, The Twelve $2595

Government's War Revenue Tax Extra Charge

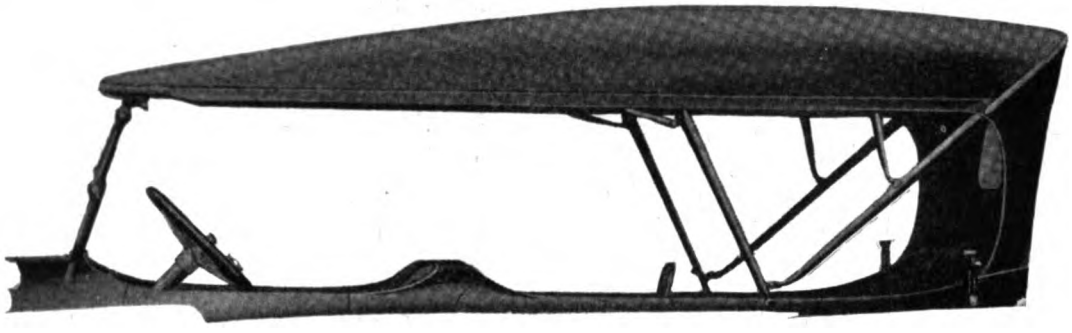


NATIONAL MOTOR CAR & VEHICLE CORPORATION - INDIANAPOLIS

Seventeenth Successful Year

When writing advertisers please mention Motor World—it identifies you

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Good Tops Sell Cars

A Big Help to Dealers Right Now

Next spring is going to see a much greater business in **used cars.** Dealers who recognize this **now** and **prepare for it** are wise. They are going to get the "jump" on the other fellows.

The **best looking** used cars sell best; cars with good looking tops and high grade, rich looking upholstery.

We can help you tremendously along these lines. We have just the materials best suited to your needs, and our prices and terms will help you make this business pay.

Write for price list and samples.

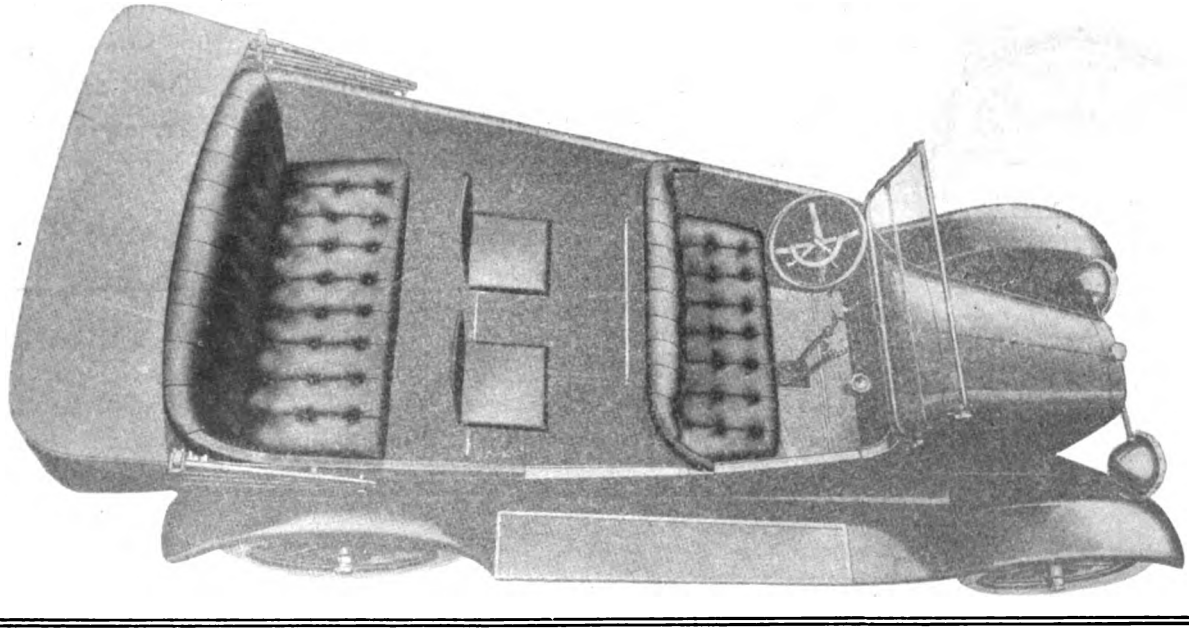
TRADE DRIDEK MARK REG.

The Most Remarkable Top Material Yet Produced

L. J. MUTTY COMPANY

BOSTON, MASS.

High-Grade Upholstery Makes the Car Look New



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When in New York see why New Yorkers have adopted the Stewart MOTOR TRUCK

When you see the hundreds of Stewarts (some of them over 5 years old) running around New York, you will wonder:

Why do New Yorkers go 500 miles away to buy their trucks, when there are so many truck factories right around New York?

Go see the answer—Call at the huge home of the metropolitan dealer, the Herrman Motor Truck Company, 607-615 W. 57th Street, New York City. The Stewart Truck Show will be in progress there all during Auto Show Week.

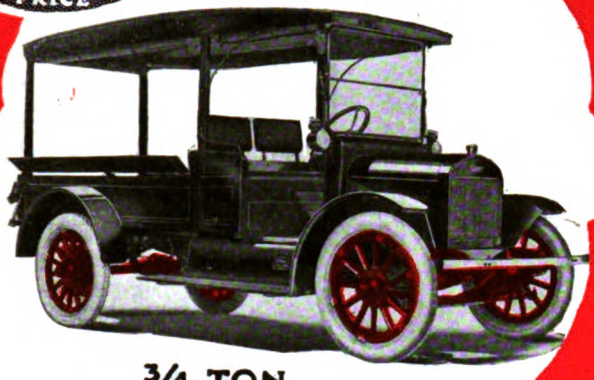
QUALITY TRUCKS Stewart QUANTITY PRICES

If you are a dealer from out-of-town, and you go to the above address during Auto Show Week, ask for T. R. Lippard, president of the Stewart Motor Corporation, or William J. Male, the factory sales-manager.

Remember — In five years

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$750 CHASSIS PRICE



3/4 TON



1 TON



1½ TON



2 TON

Stewarts cost from 15 to 60% less than average 1918 trucks

Here are facts and figures that will make you think twice before you buy any other truck—that will make you think twice before you take the agency for any other.

The Commercial Vehicle for November 1st gives the average truck prices for 1918. Compare them with the new Stewart prices.

Capacity	Average 1918 price	Stewart 1918 price	What you save
¾ Ton	$1,227.00	$750.00	$477.00
1 "	1,611.00	1,295.00	316.00
1½ "	2,137.00	1,695.00	442.00
2 "	2,504.00	2,195.00	309.00

Write now to

STEWART MOTOR CORPORATION

413-423 E. Delevan Avenue

Buffalo, N. Y.

Stewart MOTOR TRUCKS

no Stewart has ever worn out

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HOW DO YOU BUY BRAKE LINING

by name as you would a good tire, or do you buy just brake lining?

It's a mighty big asset to have unlimited confidence in the accessories you sell. It is the only safe basis on which to build any enduring business. Your customers judge your house by the quality of the products you represent. Inferior merchandise is sure to react to your detriment.

Dealers who have identified themselves with

RUSCO

BRAKE LINING

are building an enviable and profitable business and their customers have proved Rusco to be uniform, dependable and super-efficient.

Rusco brake lining is made from extra long fibred asbestos, solidly interwoven with brass wire. There is no gutting or straight threads used in its manufacture, both edges are selvaged. Rusco is thoroughly impregnated with our own compound. This chemical treatment gives extraordinary wearing qualities, as well as protection against oil, heat, dust and water.



The demand for Rusco Products—created by car manufacturers' own tests—has previously exceeded production in spite of continual additions to our equipment. We have now completed our latest and largest addition. This gives us over 450,000 sq. ft. of floor space and enables us to offer prompt shipments on all demands for Rusco Products.

National advertising is fast creating widespread demand for Rusco. There is big business waiting for you, if you are not already selling it. Don't gamble any longer—tie up to this proved brake lining and share in its success. Send now for our liberal dealer's proposition.

THE RUSSELL MANUFACTURING CO.

DETROIT, MICH. MIDDLETOWN, CONN. NEW YORK CITY

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In heavy hauling it is rapidly COMING TO THIS



A Motor Truck develops an excess of power which under average conditions can **draw four times** the truck's rated capacity. A truck that can **carry** one ton can safely **draw four tons**—an engineering fact.

This extra hauling capacity, Draw Bar Pull, is **there** and **paid for** even if **not used.** At slight initial cost and very little additional operating expense, you can use this paid-for power by employing a

WATSON
UNIVERSAL SERVICE
TRAILERS

Double the loads of each trip. Carry mixed shipments if desired, such as brick and sand. Save loading and unloading time of truck. Often use of a Watson Trailer saves the entire cost of a second truck, driver, etc.!

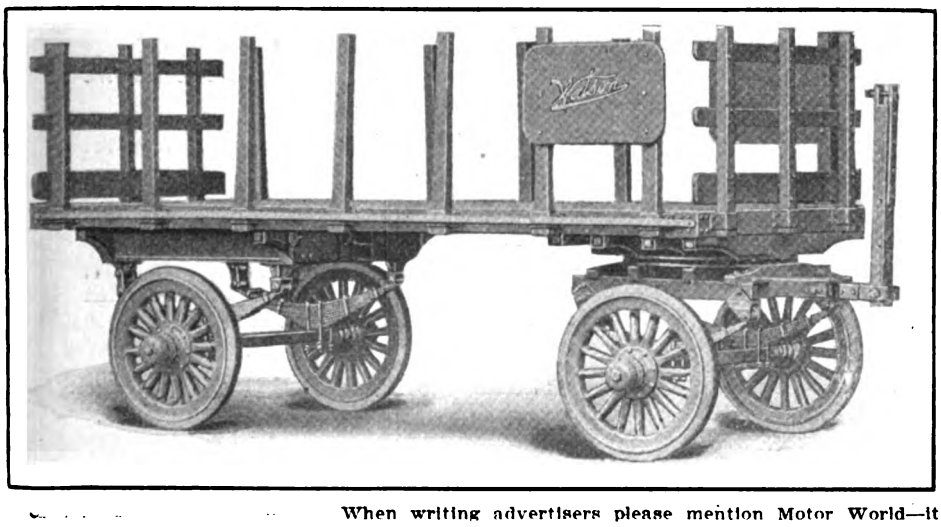
Watson Trailers are motor equipment to run at motor speeds and to **outlive the trucks that draw them. For use with any motor truck, tractor, or tractor unit.**

An excellent field for profit awaits the trailer dealer. Every truck owner is a good prospect. Responsible dealers will be very much interested in learning the remarkable facts concerning Watson Trailers and our unusual Selling and Advertising Proposition.

Investigate—write

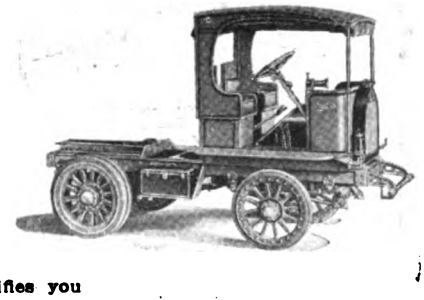
WATSON WAGON CO.

Canastota, N. Y.

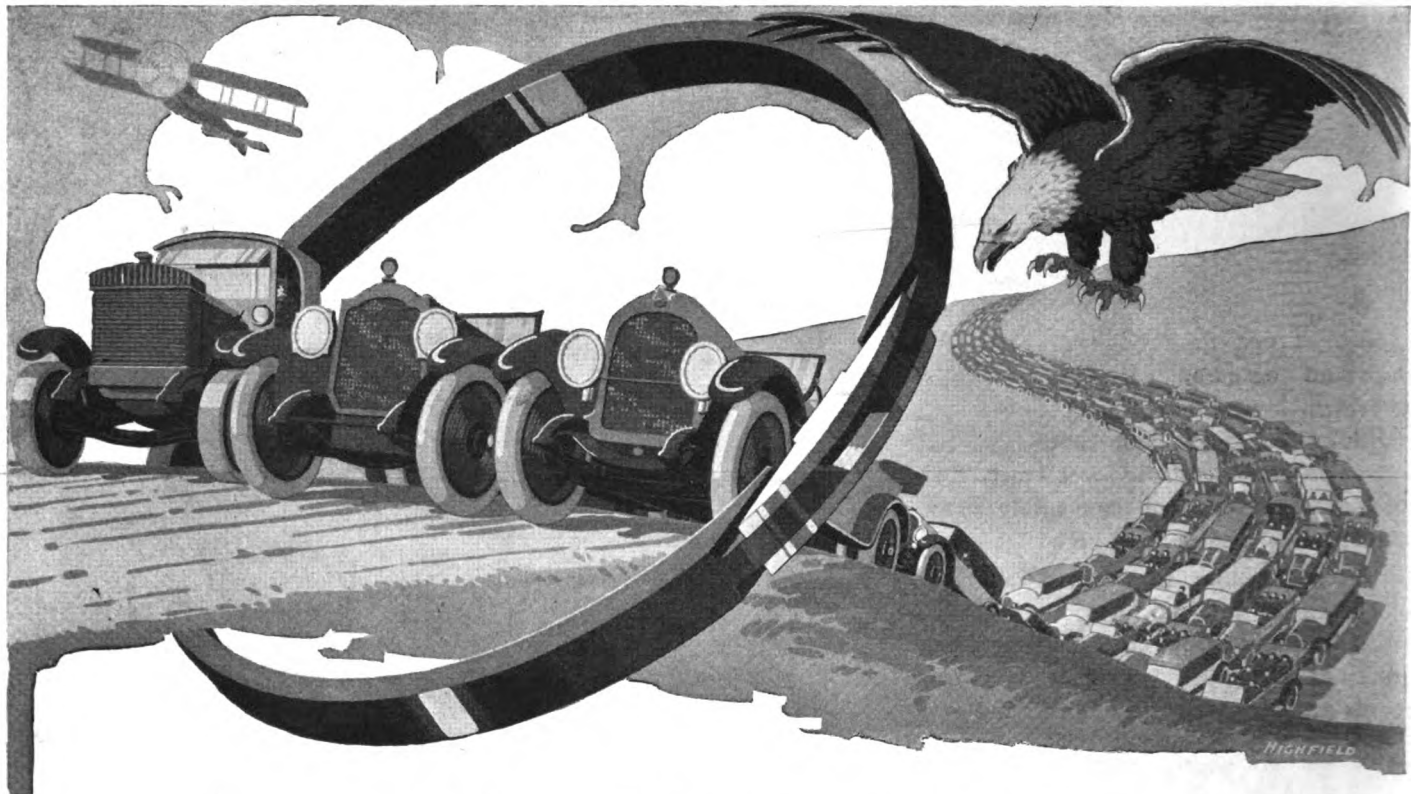


100% WATSON Tractortruck

The mastodon of the heavy hauling field. Capable of drawing immense tonnage; yet as flexible as a little pleasure car! And economical! Write for details.



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The Piston Ring That Guarantees Satisfaction

WHEN you equip a car with Burd High Compression Piston Rings, you know you have made a satisfied customer. No motor car owner can fail to note the improvement these rings have made in his motor car's performance. He finds his car has more power than it ever had before. It uses less gasoline and oil. It has more speed and compression. The cylinders are never choked with carbon.

BURD High Compression Piston Rings

Burd High Compression Piston Rings cannot leak. They enable the motor to deliver every possible bit of generated power.



The Burd Guarded Opening makes Burd Rings fit tight and ***stay*** tight. There is no gap through which the power can escape as in the ordinary rings.

At all times, the rings are in perfect contact with the cylinder walls. ***The guard seals the power in the cylinders.***

This Guarded Opening is a patented feature. No other ring has it. No other ring ***can*** have it.

And if you want your customers to get the extra power, economy, and complete satisfaction from their cars that this Guarded Opening makes possible, you must equip their cars with Burd High Compression Piston Rings.

BURD HIGH COMPRESSION RING COMPANY
Rockford, Ill.

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The Advertising Service That Guarantees Sales

A NATION-WIDE advertising campaign, supplemented by a complete dealer service, tells motor car owners just where Burd Rings excel and why. This nation-wide campaign will educate motor car owners to the necessity of selecting their piston rings with the greatest care, and will also sell them Burd High Compression Piston Rings.

BURD High Compression Piston Rings

The first full-page advertisement appeared in The Saturday Evening Post on January 5th.

This will be followed with other full-page, equally forceful and selling advertisements.

But our dealer service does not stop there. It goes much farther.

A supplementary dealer advertising service, including booklets, letters, wall cards, show case displays, etc., is furnished you absolutely free.

Accessory dealers and garagemen are every day finding more motor car owners insisting on BURD Piston Rings.

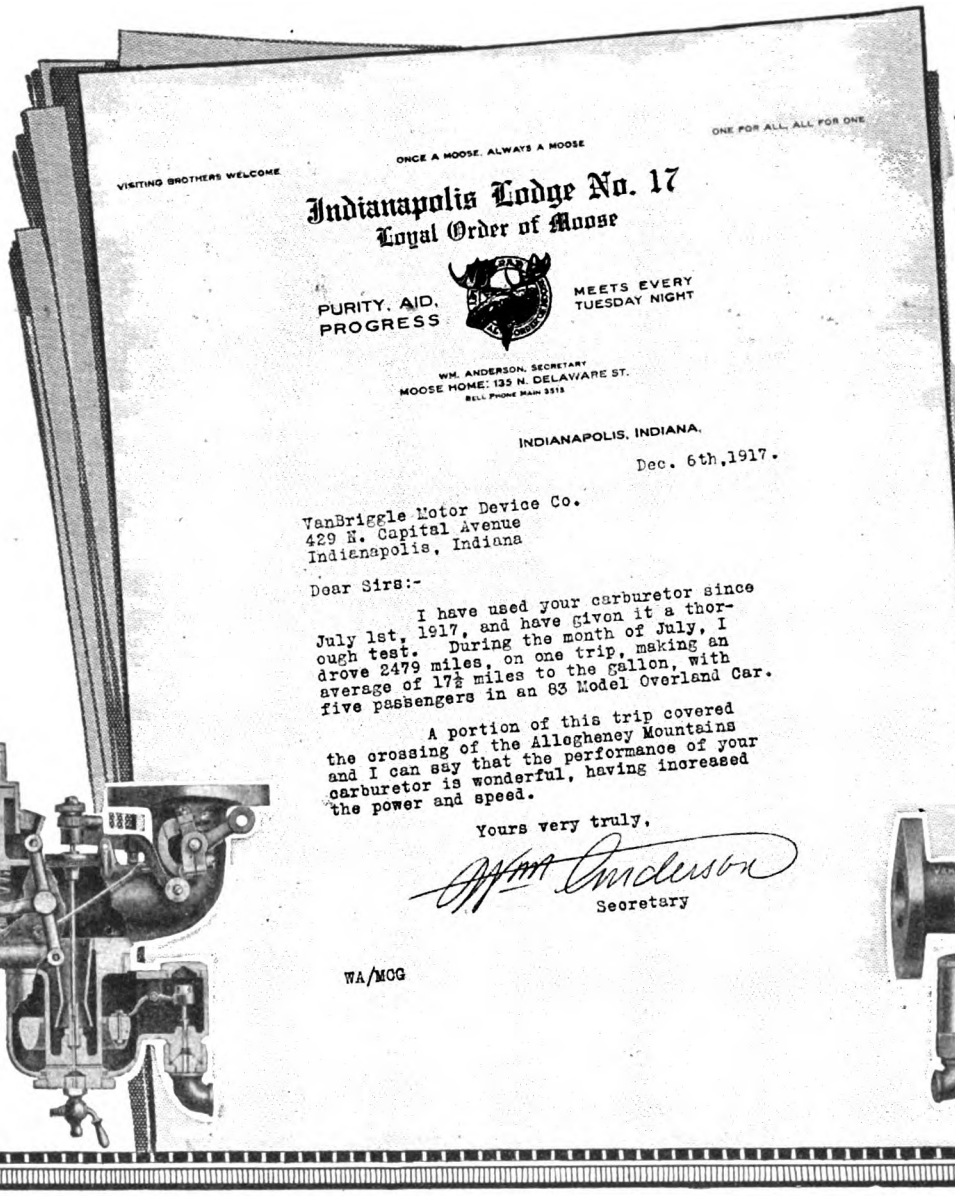
Many more thousands are bound to be won over by our nation-wide campaign. Are you ready to meet this insistent demand? If not, write your jobber, or direct to us today for full information and prices.

BURD HIGH COMPRESSION RING COMPANY
Rockford, Ill.



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Proof!



VISITING BROTHERS WELCOME

ONCE A MOOSE, ALWAYS A MOOSE

ONE FOR ALL, ALL FOR ONE

Indianapolis Lodge No. 17
Loyal Order of Moose

PURITY, AID, PROGRESS

MEETS EVERY TUESDAY NIGHT

WM. ANDERSON, SECRETARY
MOOSE HOME: 135 N. DELAWARE ST.
BELL PHONE MAIN 3515

INDIANAPOLIS, INDIANA.

Dec. 6th, 1917.

VanBriggle Motor Device Co.
429 N. Capital Avenue
Indianapolis, Indiana

Dear Sirs:-

I have used your carburetor since July 1st, 1917, and have given it a thorough test. During the month of July, I drove 2479 miles, on one trip, making an average of 17½ miles to the gallon, with five passengers in an 83 Model Overland Car.

A portion of this trip covered the crossing of the Allegheney Mountains and I can say that the performance of your carburetor is wonderful, having increased the power and speed.

Yours very truly,

Wm Anderson
Secretary

WA/MCG

for Pleasure Cars, Trucks, Tractors

VAN BRIGGLE CARBURETOR

One Principle for all Motors

Here's written proof from Wm. Anderson, who, like all other VanBriggle users, has found through *actual* test, that the VanBriggle Carburetor *increases* power and speed, and *delivers* greater mileage—even under the most laborious circumstances. Illustrated descriptive booklet free on request. *Send for it.* ¶ JOBBERS AND DEALERS: The VanBriggle is as easily handled as tires. Small stock meets any need. New opportunity for profit and service. Write for proposition.

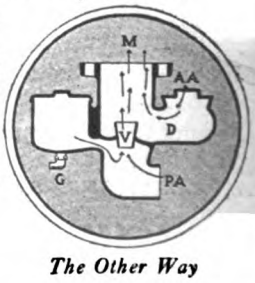
KEY TO DIAGRAMS: PRIMARY AIR (P.A.); AUXILIARY AIR (A.A.); GASOLINE (G); MANIFOLD (M.); MIXING CHAMBER (D.); VENTURI TUBE (V.); LOCATION OF MANIFOLD ON HORIZONTAL TYPE (Z.).



The Van Briggle Way

EXPLANATION OF DIAGRAMS

Because of the peculiar construction of the Van Briggle's primary air chambers, the primary air enters the venturi tube in a whirling, swirling movement, breaking even the poorest gasoline into the most minute particles. The primary mixture then enters the mixing chamber. The auxiliary air, traveling across to the manifold MUST PASS THROUGH THE PRIMARY MIXTURE. Two mixtures are thus assured in the Van Briggle Carburetor—each thorough and absolute. A thorough mixture and complete vaporization mean EVERYTHING to your motor. Compare the Van Briggle Way with The Other Way. There *is* a difference!



The Other Way

VAN BRIGGLE MOTOR DEVICE CO.
429 North Capitol Avenue, Indianapolis

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—Contributing to the Spring Scrapheap—

RUMMAGE around in any scrap iron heap and you'll find broken auto springs—and nine out of ten broken in the center. That gives you a clear-cut clue to where the greatest breakage danger lies—right in the center. Shows you, too, that elimination of center breakage is essential to greatest, safest spring service. But in side-stepping weak-centered springs be careful that you don't jump from the frying pan into the fire.

Higgins Quality Springs

FOR REPLACEMENT

have abolished the center breakage trouble. Not only that, they've mastered practically *all* spring deficiencies. True—other springs have greatly lowered center breakage. The hump has done that. But, in doing it, it has stored up other trouble. They break outside the malleable that holds leaves together in center. Bolt construction—the boring of a hole where strength is urgently needed no longer has any excuse for existence—it has no redeeming feature.

Higgins Quality Springs are "nibbed" together in the center—one leaf dovetails into another—preventing slipping and lending increased strength where it is most needed. Notice the illustration—see the flat back at center. There's *spring* there—there's *resiliency* that sponges up the jars and strength that will "give" and "take" with the hardest going and heaviest loads.

That same durable resistance dominates every point and part of Higgins Springs. The best that scientific skill, care and quality of material have to offer are built into Higgins Springs.

They are right from the beginning. Made only of best grade of motr car spring steel of a special Analysis — properly heat treated — lubricated before assembled with the best squeak and rust prevention known—handsomely finished in black—thoroughly tested before shipping. They *"arrive"* right and they stay *right* on the road—right up to the last minute of use.

Guaranteed the same at all points.

Tell Your Dealer

you want Higgins Quality Springs—insist on having them. Don't be satisfied with a substitute. A "just as good" is *never* as good.

Dealers *Send for discounts, attractive proposition and Catalog C 1917, listing 500 different styles.*

Higgins Spring & Axle Co.
Dept 423
Racine, Wis.

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COE-STAPLEY

Our Announcement

COE-STAPLEY is a name well and favorably known to car manufacturers and the large jobbers because of its many years of straight dealing.

Previously, all our attention has been devoted to supplying good hand pumps to large-volume buyers—principally car makers.

With this announcement we enter the jobbers' field, intending to do business with all recognized jobbers on a basis justified by their requirements.

We shall sell only to jobbers—because we feel that through jobbing channels we find the most economical means of distribution. Thus our merchandise will cost both dealer and consumer less.

We shall co-operate with all of our jobbers by advertising to the dealers, who are the jobbers' *consumers*—and to car owners throughout the country.

We shall co-operate even more intelligently, however, with all four factors in the distribution of automobile accessories—manufacturer, jobber, dealer and consumer—by selecting the articles we shall manufacture and sell on the basis of demand, suitability, novelty, appearance and economy.

For the rest, the Coe-Stapley Mfg. Corporation is an organization whose financial resources are, for all practical purposes, unlimited, and whose manufacturing requirements will be amply taken care of by our splendidly equipped plants at Bridgeport, Conn., and Brooklyn, N. Y.

We shall soon present to the trade a diversified line—our pumps, a jack and several other items we have in view. The first item for which we ask your consideration is presented on the opposite page. We selected the Peteler Auto Jack from the field as the one lifting jack whose design, quality and future warranted us in putting behind it the reputation, the resources and the selling effort of the Coe-Stapley organization.

E. B. Shoemaker

Secretary-Treasurer.

Coe-Stapley Mfg. Corporation

Executive Offices: 115 Broadway, New York

Factories: Bridgeport, Conn., and Brooklyn, N. Y.

See us at the New York Show—Space D-13, Grand Central Palace, Jan. 6-13, 1918

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Manufacturing Corporation

$6 for the best Jack in the world

Peteler AUTO JACK

$6 for the best Jack in the world

The new Peteler Jack is the best Jack in the world—even better than the previous model Peteler Jack.

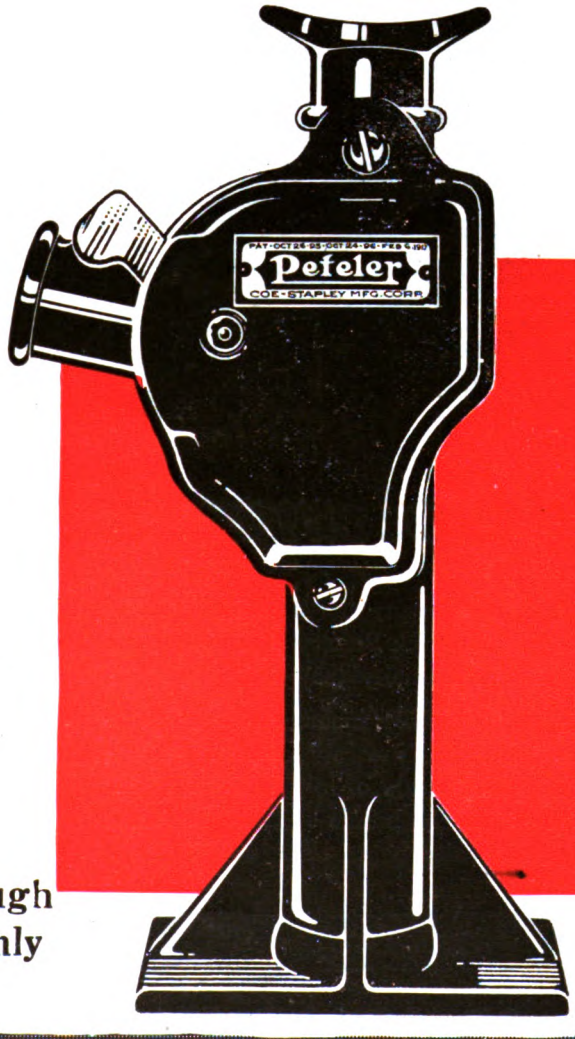
It's simple—a few moving parts and nothing to get out of order.

It's sturdy—the working parts are of the finest tool and cold rolled steel, the case of malleable iron.

It's powerful—capable of raising 3000 lbs.—a half ton of overstrength.

It's efficient—does everything a Jack could be asked to do and without effort.

It's fast—and no waste of time.



The Peteler Jack is greatest in action.

It has a long telescoping handle—can be slid under the car without kneeling.

It has a short stroke—can be slid way under and yet operated.

It raises the load easily—quickly.

It lowers with the same facility—a simple turn of the handle operates a pinion and reverses from the upward to the downward action.

Relieved of the load—a lift of the handle allows the rack to drop down and the Jack can be withdrawn.

The best Jack in the world.

Sold through jobbers only

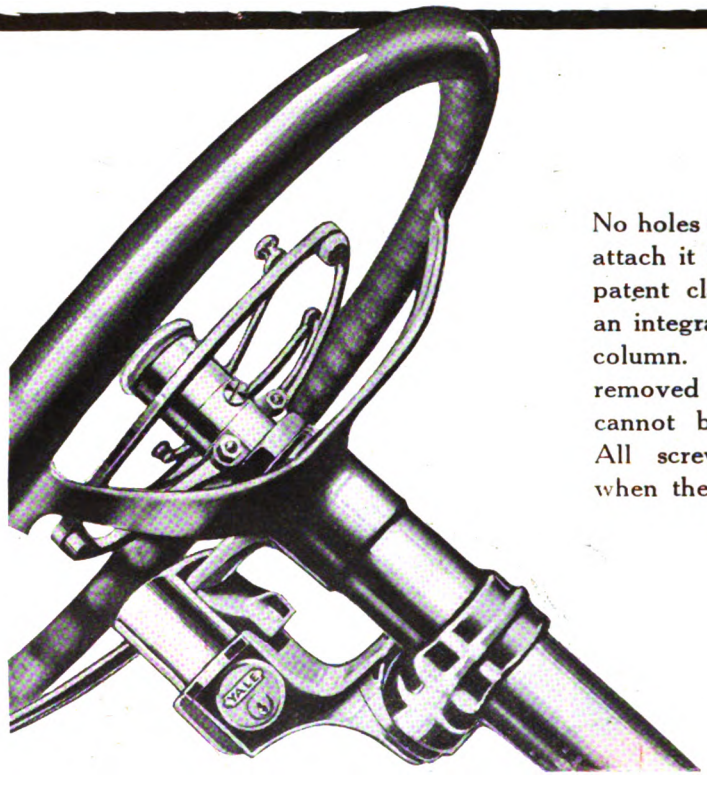
Orders filled in rotation.

Digitized by Google

Goodrich
AUTOMOBILE PRODUCTS

Passes all police and fire ordinances everywhere.

A single turn of the Yale key locks the steering column. The front wheels being held in a straight-forward position, your car cannot be driven or towed.

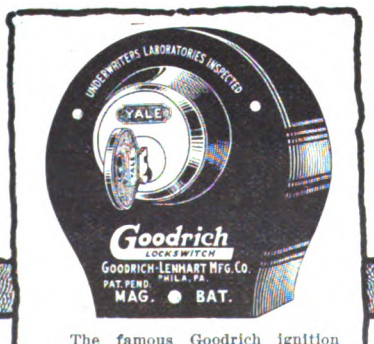


No holes to bore. Anyone can attach it in a few minutes. A patent clamp makes the lock an integral part of the steering column. Does not have to be removed when driving. It cannot be cut or pried off. All screwheads are covered when the column is locked.

Steering Column Lock

THE big feature of the best selling line of accessories for 1918 is the Goodrich Steering Column Lock. It will be your single largest selling specialty this year.

New, revolutionary insurance regulations place the major responsibility for a motor car's safety upon the car owner. This will give marked impetus to the sale of locks. Goodrich advertising will turn this forced demand into the hands of Goodrich dealers. Write at once for catalog pages and sales helps. Be identified with this most important line.



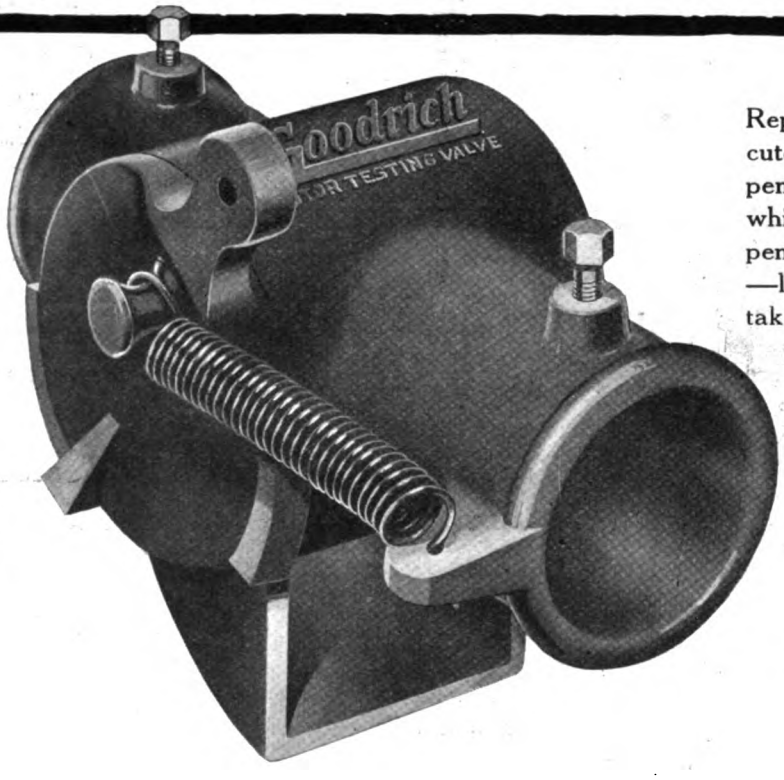
The famous Goodrich ignition lock for Ford cars. Covers and grounds ignition switch, making it impossible to wire back of dash to start car with lock on. Put on in two minutes by anyone. Equipped Yale lock and individual key.

GOODRICH-LENHART MFG. CO.
WIDENER BUILDING
PHILADELPHIA, PA.

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Goodrich
AUTOMOBILE PRODUCTS

Step on the pedal as you leave the garage, make your motor run the scale to see if she is hitting on all cylinders. A full, round note sings out at each explosion; misfire and preignition are markedly contrasted — you know what to expect from your motor at all times.



Replaces the old-style cutout with an indispensable testing device which warns you of impending motor trouble —long before it overtakes you.

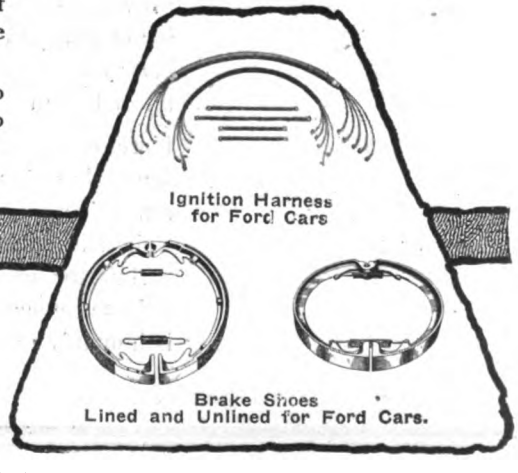
It intensifies the heart beats of your motor — gives you its pulse-rate, and prevents back pressure.

Motor Testing Valve

The Motor Testing Valve is a most important addition to the Goodrich line. It is invaluable to the car owner as it will save much in repair bills by warning one in time.

The bell-shaped mouth of this valve allows for ample expansion of gases, relieves the motor of all back pressure and greatly enlarges the sound.

The valve is so constructed that it prevents all gas from passing into the muffler when closed. The exhaust is given complete freedom; no adjustments ever necessary.



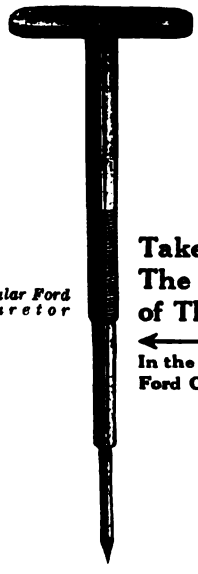
GOODRICH-LENHART MFG. CO.
WIDENER BUILDING
PHILADELPHIA, PA.

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The Thermostat control and needle which automatically keeps the carburetor perfectly adjusted. List price complete $5.00.

This

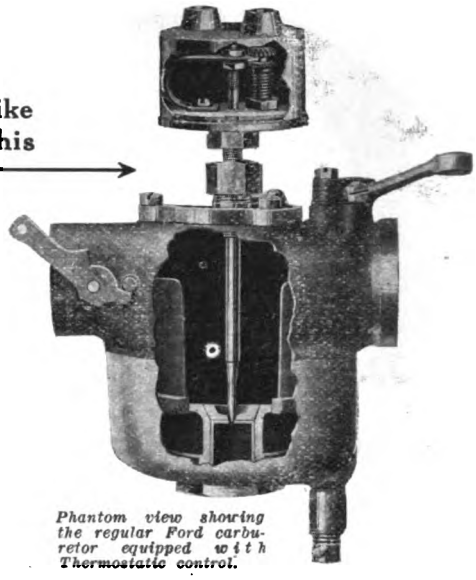


The regular Ford Carburetor needle.

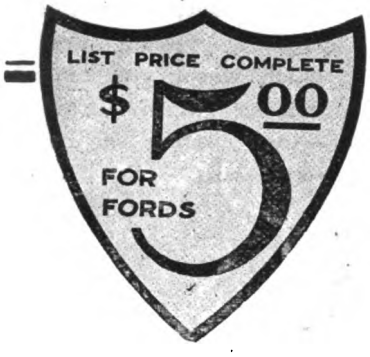
Takes The Place of This

In the Regular Ford Carburetor

Like This



Phantom view showing the regular Ford carburetor equipped with Thermostatic control.



Automobile Engineers Pronounce It One of the Greatest Scientific Achievements of the Year

A Thermostatic Controlling device which keeps the Ford Carburetor perfectly adjusted to all speeds and to all operating conditions.

Save 30% to 75% Gasoline

You know, of course, the big difference it makes in your gasoline mileage when you keep your carburetor *constantly* adjusted to meet the ever changing temperature of your engine.

It is nothing unusual to learn of a *careful* Ford owner averaging 50% greater gasoline mileage than another who is less careful of his carburetor adjustments.

Although a handy means of adjustment is provided on the dash of every Ford car, it is not *always convenient* or *easy to remember* to keep changing it as the motor heats up or becomes cold.

Here, now, is the answer to your problem—something that will do your thinking and remembering for you—a device worth its weight in gold, that can be attached to your carburetor in a minute's time and keep it adjusted every second, more perfectly than is humanly possible.

Automatic Control Increases Mileage 37% to 100%

You have, no doubt, during the past few years, heard or read of the great achievements made by science in perfecting thermostatic controlling devices.

Thanks to science, a sensitive metal called "Thermostatic" has been perfected, which expands and contracts with the slightest change in the temperature of the air that surrounds it.

This principle has been scientifically utilized to control the action of the needle in your carburetor. The instant your engine begins heating up, the thermostatic metal begins forcing the needle downward into the mixing chamber—gradually thinning the mixture with each change of temperature to exactly the right proportions for the most efficient and economical operation. When the engine is cold, the thermostatic metal is expanded and the needle valve is drawn up-

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Goodrich THERMOSTATIC CONTROL

for FORD CARBURETORS

—Never Stops Thinking



wards, thus permitting a flow of rich gas necessary for easy starting.

It never requires attention. It is unfailingly sure. It will not wear out or get out of order. Above all—*it never stops thinking.* It is always on the job—night and day and any kind of weather accurately adjusting your carburetor with the slightest change in the temperature of the engine.

In operation it is almost uncanny. The immediate increase in mileage is truly astonishing. An increase of 35% is a minimum average. An increase of 100% is not unusual. A big improvement too will immediately be noticed in the running of the engine. Because of the always perfect adjustment, it runs more free, more smooth and more quiet. Thanks be to the every perfect adjustment of the carburetor, you will not be bothered with carbon deposits in your cylinders.

Fully Guaranteed or Money Refunded

It has taken years to bring this device to its present state of guaranteed perfection. This, the first public announcement, appears only after many hundreds have been sold and their efficiency established beyond any possible question of doubt. Big firms, operating fleets of Ford trucks, are using them and report saving of many hundreds of dollars on gasoline consumption. Many individual owners report increases in mileage which appear utterly unbelievable until one personally achieves the same saving.

Easy to Install by Anyone in Two Minutes

To install, merely unscrew your present carburetor needle and remove it. In its place put the Goodrich needle equipped with the Thermostatic control—that's all. No removing the carburetor. No holes to bore. No changes of any kind. Should you wish to return the Goodrich Thermostat within 30 days and get all your money back, your carburetor will be just as it was before.

The Thermostat will be marketed through reputable jobbers and dealers everywhere on a "money back within 30 days if not completely satisfied" basis. Back of the Thermostat stands our years of reputation for fair play with the trade. It carries our unequivocal guarantee and must make good or we will. List price complete $5.00.

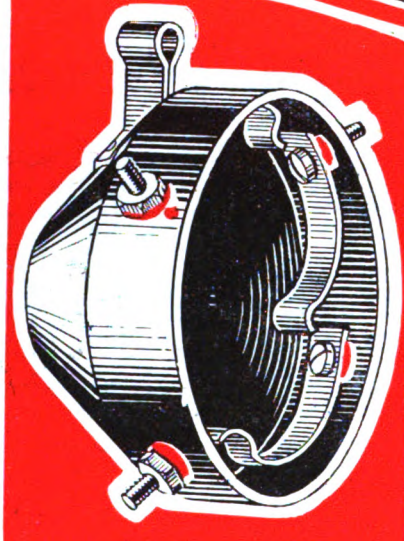
Jobbers' and Dealers' discounts will be quoted upon request, to those entitled to such discounts. Literature, catalogue, electrotypes, and mailing matter available for the trade.

GOODRICH-LENHART MANUFACTURING CO.
418 Widener Building, Philadelphia, Pa.
Factory: Hamburg, Pa.

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TRADE APCO MARK

TIMER FOR FORDS





$1.00 LIST

The carburetor is the heart of the automobile but the timer is the brains and with this thought continually before us, we offer the Apco Spring Timer which is the only one on the market that can be rebuilt when worn, and by eliminating the fibre ring and replacing the small spring on the roller with four large springs on the case, we overcome ninety per cent. of the Ford Timer troubles.

The shell is a steel stamping with a single steel stamped advance arm riveted on. The contacts are clock spring steel held by special screws insulated with bone fibre and these springs are easily and cheaply replaced when worn. The roller is hardened steel held in a die casting and it runs on a hardened steel bushing which practically insures it against wear. The finish is natural steel and each timer is packed in a box weighing eight ounces and one hundred in a carton weighing fifty pounds.

Dealers' Discount, 25%
In Lots of Fifty, 33⅓%

Sold through jobbers only in 126 cities in the United States and Canada

APCO MANUFACTURING CO.
PROVIDENCE, RHODE ISLAND

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1102 Detroit All-Season Weatherproof Tops

Sold by one dealer in a western state of less than 2½ million population in three months



He saw an advertisement in a trade magazine. He clipped the coupon. We sent a representative to him. With considerable reluctance he signed up for 100 Detroit Convertible Weatherproof Tops. That was two years ago.

Then this dealer did just what any live dealer can do. What you can do. He analyzed the Detroit Convertible Weatherproof Top. He studied it from its splendid oak and steel frame to its lasting weatherproof covering and hardy flexible doors. He learned how to install the top, how to remove the side panels, and show his customers that "The Top at the Top" is just as fine an article for summer as for winter use. He *convinced himself* that he had a matchless top for his trade. He was sure of himself—proud of his line.

Then he organized his territory. How did he do this? Ask him: We will give you his address on request. At any rate, *he sold tops*. The first hundred gone—in came repeat orders—ten—thirty—a hundred. Orders—orders—by letter, by special delivery, by wire. In December came the climax—1102 tops sold by this dealer since September 1. He's going to Florida now and rest.

If you're a live dealer—a capable organizer—we want you in our organization. Detroit Convertible Weatherproof Tops are in *demand*. Motor car owners ask for the "Top at the Top."

Your territory may be unallotted. We supply a coupon for your convenience in writing us for dealer's terms and sales plan.

Detroit Weatherproof Body Co.

Pontiac, Mich.

RETAIL PRICE LIST

For the present we manufacture tops for the following cars only:

Ford Touring	$ 87.50
Overland Model 83-5 Pass.	115.00
Buick D45 Light 6	140.00
Chalmers 6-30-5 Pass. (including rain vision visor to be fitted to standard windshield)	97.50
Chandler 1917, 1918 (including 3 piece built-in windshield)	185.00
Hudson Super Six Touring (including 3 piece built-in windshield)	190.00
Chevrolet Model Four-ninety	110.00
Maxwell Roadster	130.00
Maxwell Touring	145.00

Detroit Weatherproof Body Co.,
105 Saginaw St.,
Pontiac, Michigan.

Without obligation on my part, kindly send me dealer's terms, sales plan, and full information relative to **The Top at the Top.**

Name .....

Address .....

.....

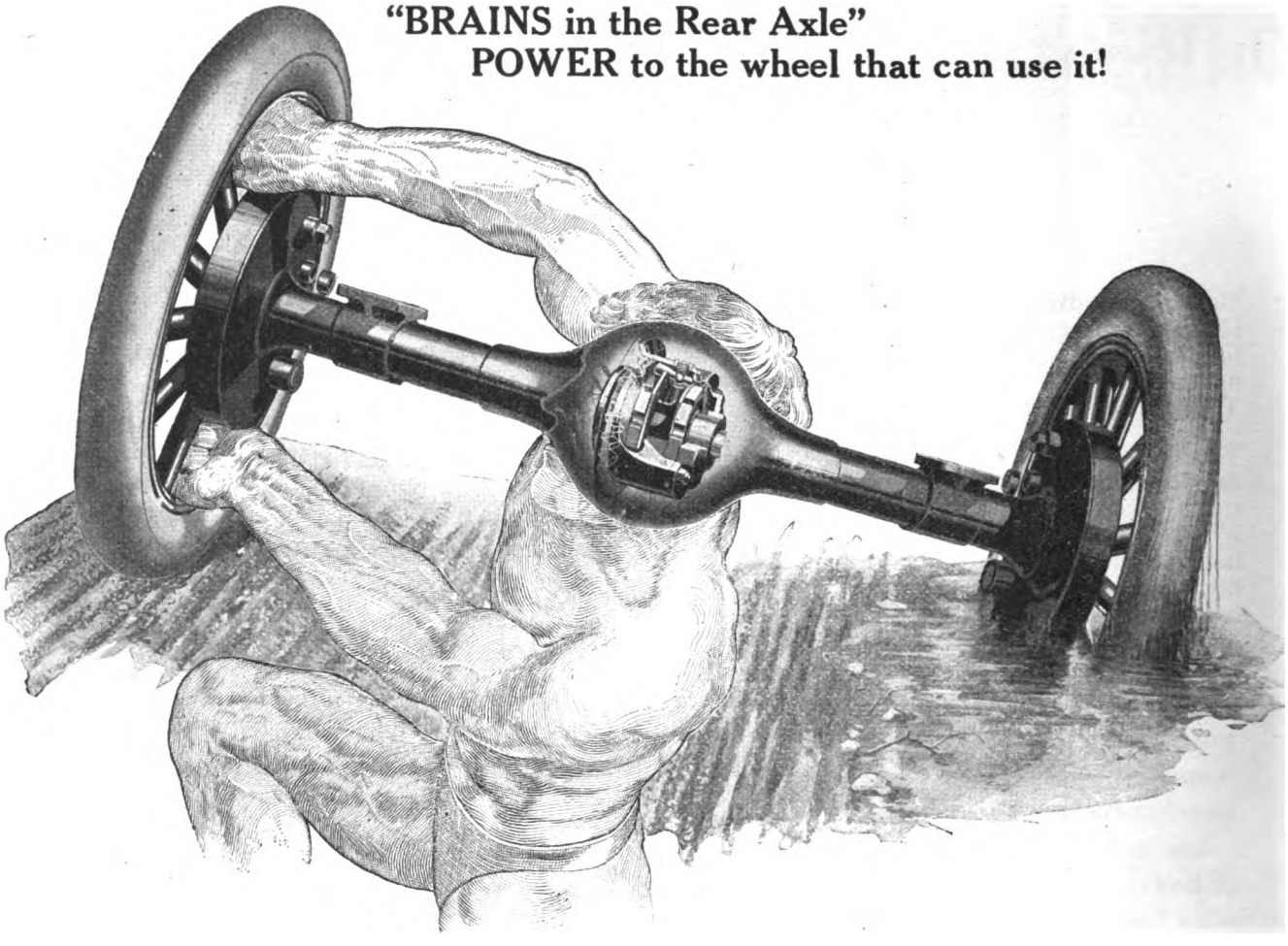
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BAILEY

NON-STALL

DIFFERENTIAL

"BRAINS in the Rear Axle"
POWER to the wheel that can use it!



79 Miles, with Driving Power on One Wheel!

It happened in Oklahoma.

A salesman for one of our distributors in an emergency experienced positive proof of the value of the Bailey.

He was driving from Forgan to Knowles —a hub on one rear wheel of the Ford broke.

Luckily for him there was a Bailey Non-Stall Differential in the rear axle.

These "brains" in his rear axle intelligently directed the power to the OTHER wheel and he was able to drive 79 miles.

"This is another remarkable demonstration of what the Bailey Differential will do in case of emergency," says C. L. Johnson, Sales Manager of the Auto Supply & Tire Company, Wichita, Kansas.

From every part of the country come proofs as striking as the above, proving that the Bailey corrects a fundamental weakness in cars.

The old-style differential, in use since the first automobile, both fails to do what it should and does what it should not.

The Bailey intelligently sends the power to the wheel which has traction and can use it.

No power goes to waste, but all of it is used properly.

Anybody can install it quickly.

It can be fitted into many rear axles.

Great Dealer Opportunity

Owners and dealers should write us for complete information

Bailey Non-Stall Differential Corporation, Chicago, Illinois, 1124 Michigan Avenue

When writing advertisers please mention Motor World—It identifies you

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586.8 MILES OVER

Chicago's Most Congested Streets in 24 Hours On High Gear



A Remarkable Feat Accomplished by a Stromberg-Equipped Stock Seven-Passenger Chalmers

In twenty-four hours through the heart of Chicago's busiest traffic a Stromberg equipped stock Chalmers seven-passenger touring car complete with standard body, top and full equipment, traversed 586.8 miles with a perfect score.

An exceptional feat—yes—and a **wonderful** one—because every mile was made on **high gear. Both first and second gears were removed** before starting. All stops, all starts were made on high gear and high gear **alone.**

The Motor Was in Operation Every Second of the Time

The car was kept constantly in the "thickest" of Chicago's most crowded streets—criss-crossing the loop. Weather conditions were detrimental—cold—snowy—windy. Still the engine never faltered—never failed to respond instantly. Never was there a greater display of flexibility—of dependability. And with this splendid efficiency, there was a substantial saving in fuel—an average of 14 miles on a gallon of gasoline. See the New Stromberg at the N. Y. Show.

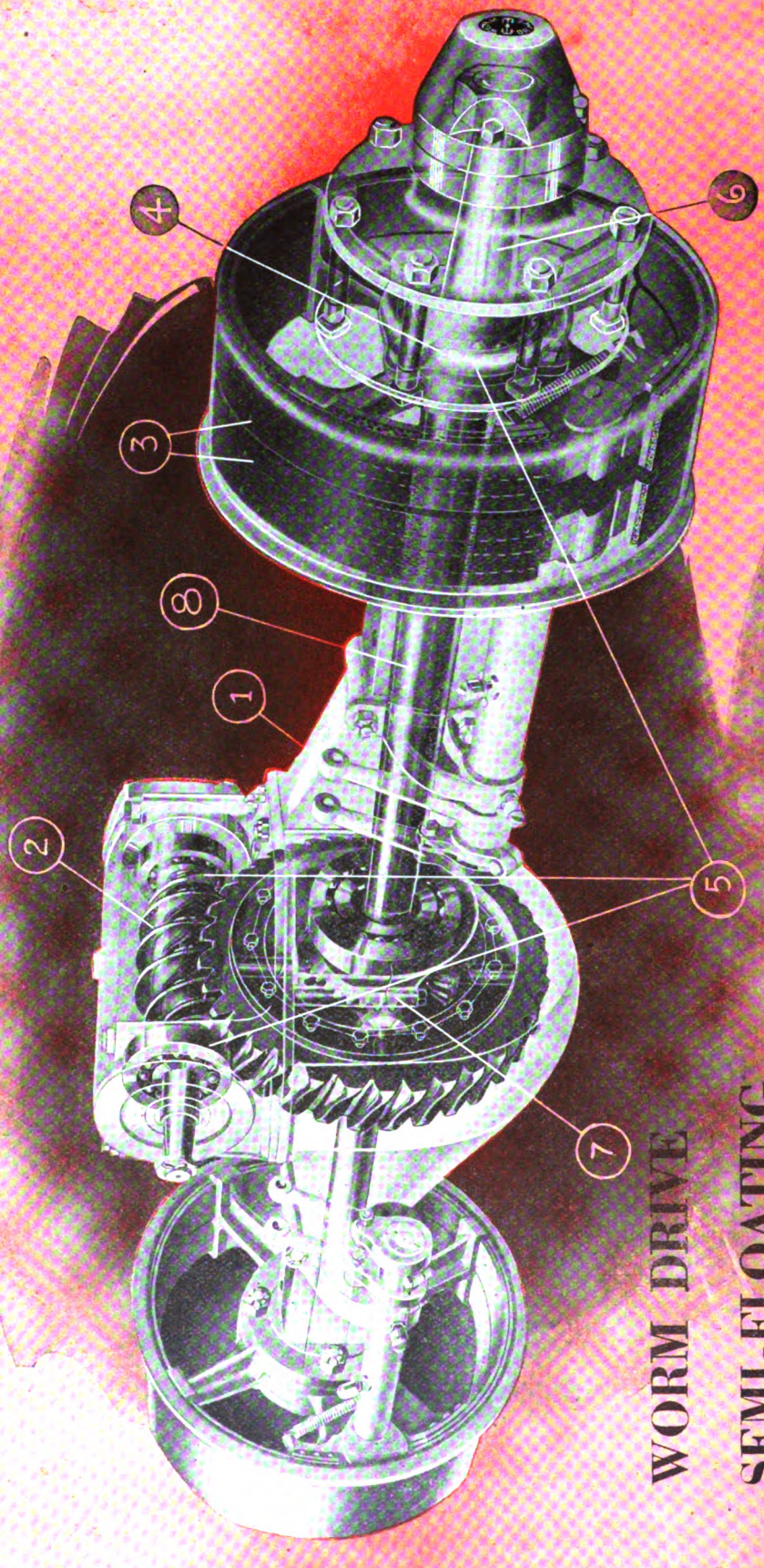
or, write at once for free circular matter—and money-saving facts. State name, model and year or your car.

Stromberg Motor Devices Co.
Dept. 1228, 64 E. 25th Street
Chicago

New STROMBERG Does it!
CARBURETOR

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SHELDON



WORM DRIVE
SEMI-FLOATING
BALL-BEARING EQUIPPED

When writing advertisers please mention Motor World—It identifies you

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SHELDON

SHELDON was first in America to build worm-drive axles successfully for the trade. For more than 50 years Sheldon has led in the scientific development of heat treating fine steels.

SHELDON axle design and construction, therefore, has attained its present high standards by a natural development, through the continuous striving by men of knowledge and experience to meet *actual service conditions*.

THE SHELDON Worm-Drive Axle contains no mechanical unit, embodies no principle of construction, that has not proved its superiority by years of service under varying conditions, over thousands of miles.

1. One-piece cast-steel housing, built like a bridge and just as strong. Lightest and strongest type of construction known.
2. Straight or David Brown type worm. Highest efficiency, longest life, guaranteed for one year, mileage 100,000 miles and upward frequently reported.
3. Double internal brakes. Powerful, quick-acting, unfailingly sure. All working parts enclosed and protected from foreign substances. Unequalled for economy of upkeep.
4. Semi-floating wheel bearing construction. Fewer parts, lighter weight, greater strength, economy of manufacture and operation.
5. Ball-bearing mounting throughout. High efficiency, bearing adjustments eliminated.
6. Tapered hub mounting. Permits of demountable wheel, makes tire changes quick, easy, economical.
7. Oversize differential. Never wears out, built to outlast the truck.
8. Big husky drive shaft, 3½% nickel steel forging, correctly heat treated, tapered from differential to wheel bearing, gives strength where needed for every character of stress imposed upon it.

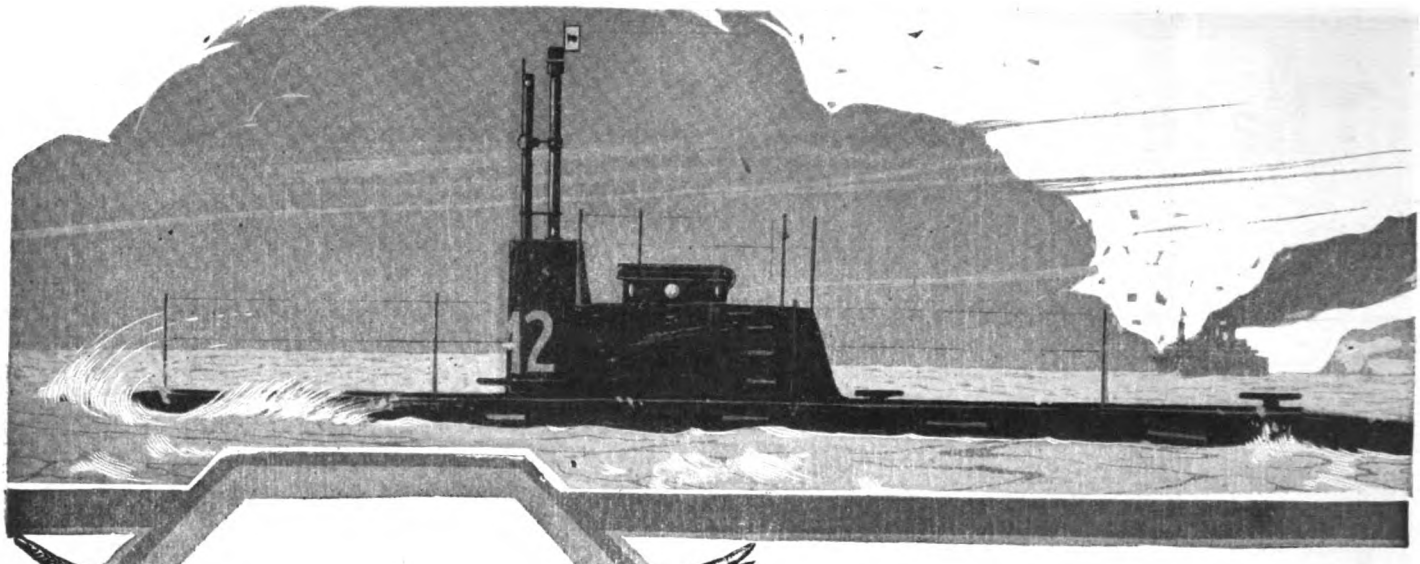
Sheldon Axles are more than correct in theory; they have been PROVED IN PRACTICE

SHELDON AXLE & SPRING CO.

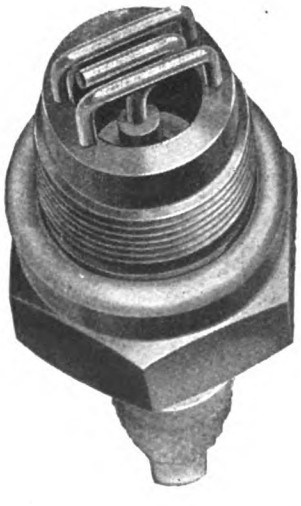
Makers of Axles and Springs for Heavy Duty Service for over 50 Years.

WILKES-BARRE PENNA.

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BERGIE
National
SPARK PLUGS



The Spark Plug
With the One Inch
Firing Surface

Used in the Most Perilous and Exacting Service Known—

SUBMARINE SERVICE

A spark plug which satisfies the strict requirements of sub-sea service needs no further endorsement as to superiority for motor car use.

Try a set this winter on 30 days' trial. Ideal for quick, snappy starting. Price $1.00 each, for all makes and models of cars.

Guaranteed for 365 days. Order of your dealer, or if he cannot supply you, order direct. We have an unusual proposition for the dealer. Write for it.

BERGIE NATIONAL SPARK PLUG CO.
ROCKFORD ILL.

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That First Lasting Impression of *Your* Car

A Message for the Owner of that Car

WHEN someone looks at your car, what factor—more than "specifications," "economy," or "performance"—imparts that first lasting impression?

It is the appearance, the finish.

The manufacturer of your car talks about its engine, its running gear, its equipment. He rarely mentions its finish—because he assumes that the finish speaks for itself.

But the manufacturer long ago recognized the importance of the finer finish—that external evidence of inner quality, that visible token of attention to the more refined detail. He carefully investigated drying systems designed to dry or "set" the various coats, from "primer" to "finishing varnish." Perhaps his initial interest was inspired by the need of drying methods which would enable him to dry more quickly, so that equal floor space might produce greater output and methods which, being mechanical and certain, might render him independent of the weather's vagary. He found, assisted by this company, that both of these things could be accomplished and, coincidentally, many other things.

It was found that finishes could be dried quickly, economically and uniformly, and that the accurately controlled mechanical process produced a superior finish, each coat thoroly and evenly dried. Finishes cannot be "baked." They must be "conditioned," that is subjected to a uniform, automatically controlled atmosphere, the temperature and humidity of which has been determined by careful experimentation.

Today eighty-seven manufacturers of automobiles and bodies—among them the best-known manufacturers in the United States—are using our process or equipment. This equipment was installed because the manufacturers ensured, by its use, a superior, more durable finish, absolute conformity to established standards, and freedom from the "hit and miss" methods of the old "air drying" practice.

In the final development the remarkable economy of scientific drying has been transcended by the production of a better finish.

The owner who insists upon a scientifically finished car, whether it be a new car, or whether it be a matter of refinishing, minimizes that part of his maintenance expense and secures the maximum value for his money.

In these days of retrenchment and curtailed production, many owners must forego "the new car," and if they insist upon the refinishing of their present cars by the refinisher equipped with an automatic drying system, they will ensure the utmost satisfaction and the least inconvenience. The automatic system will enable the refinisher to guarantee delivery of the car in a surprisingly short time and will ensure a finish equal to that originally provided by the manufacturer.

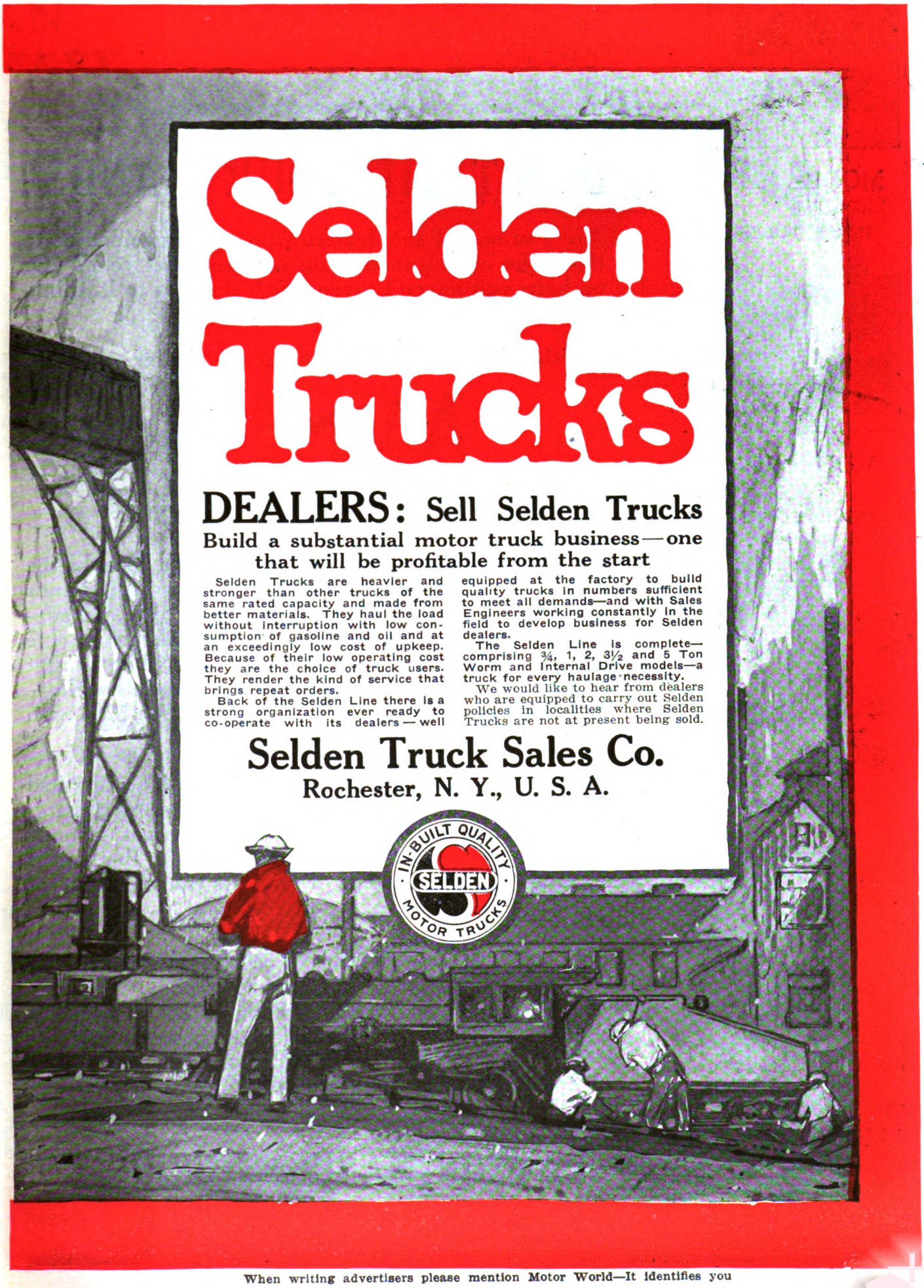
DRYING SYSTEMS, Inc.

The Karpen Building, CHICAGO

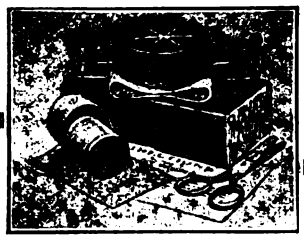
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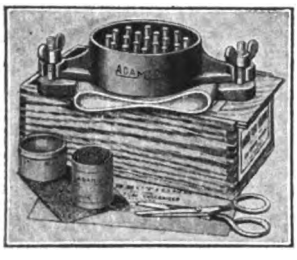
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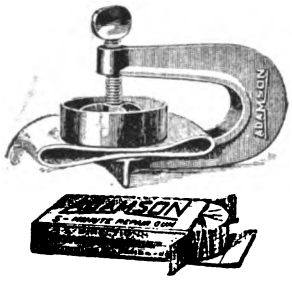
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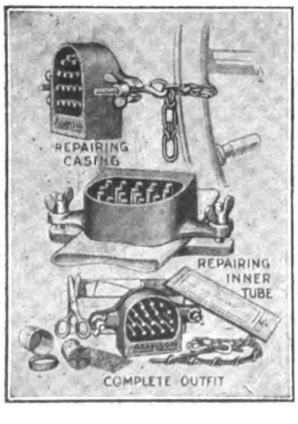
MODEL "M"
FOR
INNER TUBES



MODEL "I"
FOR
INNER TUBES



MODEL "E"
FOR
INNER TUBES



MODEL "U"
FOR
CASINGS AND INNER TUBES

DON'T TIE YOUR HANDS!

Are you one of the dealers who are undecided as to the make of vulcanizer you will sell next year? Or perhaps you haven't given much thought to it, thinking they're all alike.

If either is the case—remember the dealer who sells

ADAMSON VULCANIZERS

has a big advantage over his competitors because the Adamson is the only COMPLETE line. His hands aren't tied by a lack of types and sizes. He can supply an Adamson for any requirement asked for. He sells the pioneer vulcanizer—the one that taught motorists how they could save on their tube bills—and later, on their tire as well as their tube bills with the same outfit.

Adamson Vulcanizers use convenient and economical gasoline. They do not require expensive electricity, are not delayed by having to generate steam, or need no special fuel. They are absolutely safe; the heat is automatically regulated. Motorists prefer them for these reasons.

The fact that 1,000,000 Adamson Vulcanizers are giving satisfactory service, is proof of their popularity and reliability. Get your share of the profits. Don't lose sales because you can't supply every demand. Or because you didn't order early. Order from your jobber today. If you don't know who the nearest one is, write us.

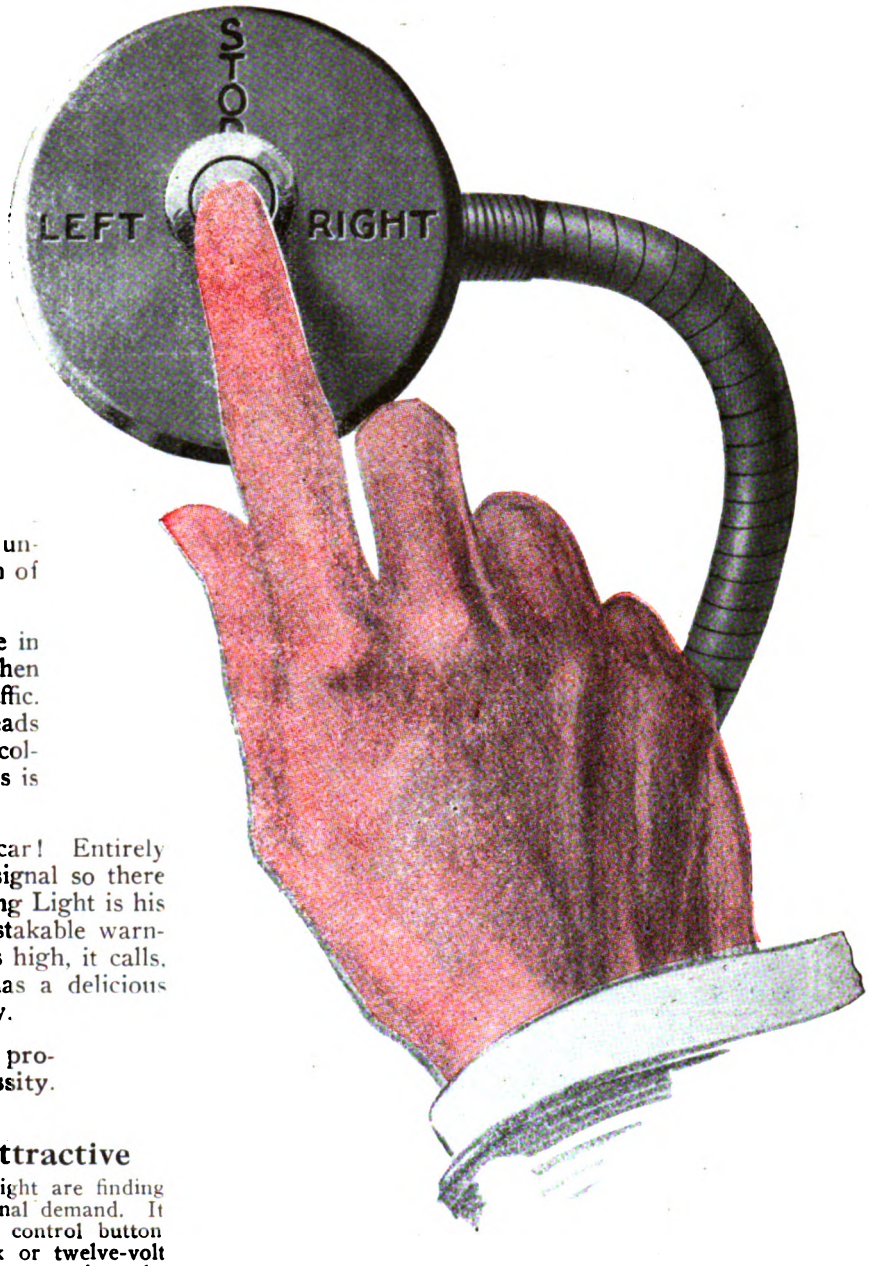
ADAMSON MANUFACTURING CO.

EAST PALESTINE, OHIO

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AN EASY WINTER SELLER

THE ROEDDING SIGNAL TAIL LIGHT



Hand signaling, always unsatisfactory and unsafe, becomes impossible in winter, the season of closed cars and drawn curtains.

In winter, every motorist who wants to drive in comfort has felt his utter helplessness, when creeping nervously through congested traffic. Unable to signal to the car following, he dreads the crash that means he is another rear-end-collision victim. Motoring under such conditions is not enjoyable.

How different with the Roedding-equipped car! Entirely protected from the weather, the driver can signal so there will be no possibility of mistake. His Roedding Light is his individual traffic officer. It flashed its unmistakable warning to the man behind. In letters two inches high, it calls, *Right, Left, Back, Stop.* The car driver has a delicious sense of security—a full realization of safety.

Roedding Signal Tail Lights are a protection at all times—a winter necessity. They sell *easily*.

Our Proposition To Dealers Is Attractive

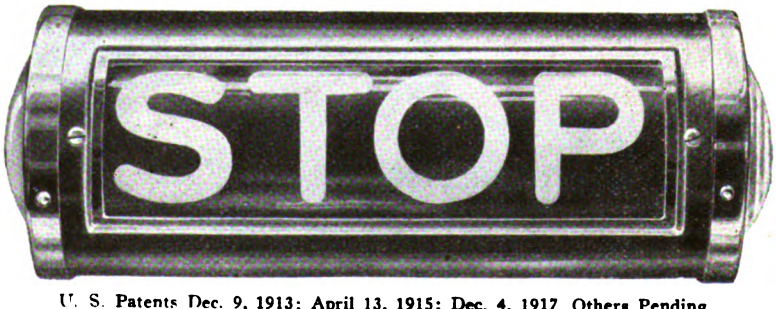
Dealers who are already offering the Roedding Light are finding it a fast seller. It answers every angle of the signal demand. It is attractive, substantial and compact. Its *single* control button operates all signals and the horn. Run from six or twelve-volt batteries. These are potent selling points. After operation, the Roedding Signal returns to neutral automatically.

Dealers who respond quickly may acquire exclusive territory—write or wire to-day.

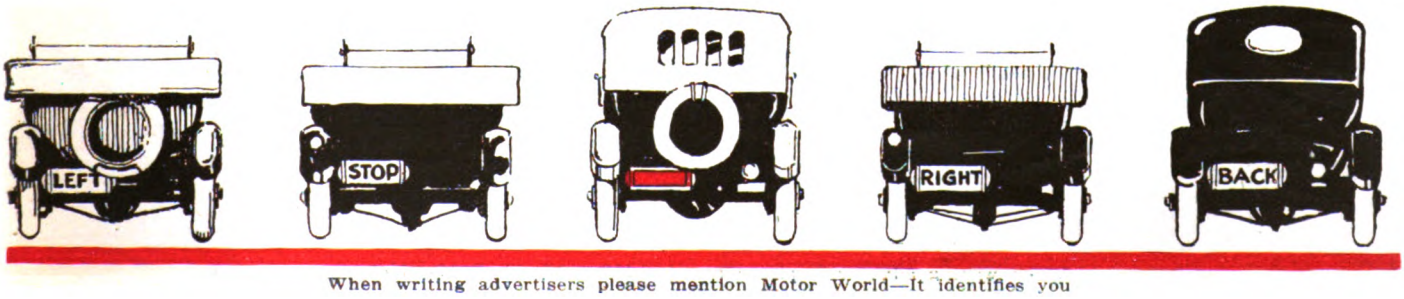
A few exceptional positions are offered men of proven sales ability who will travel and establish dealers and agencies.

Price Complete, $18.00

K. G. BARKOOT, Sole Distributor
1010 Chamber of Commerce
DETROIT, MICH.



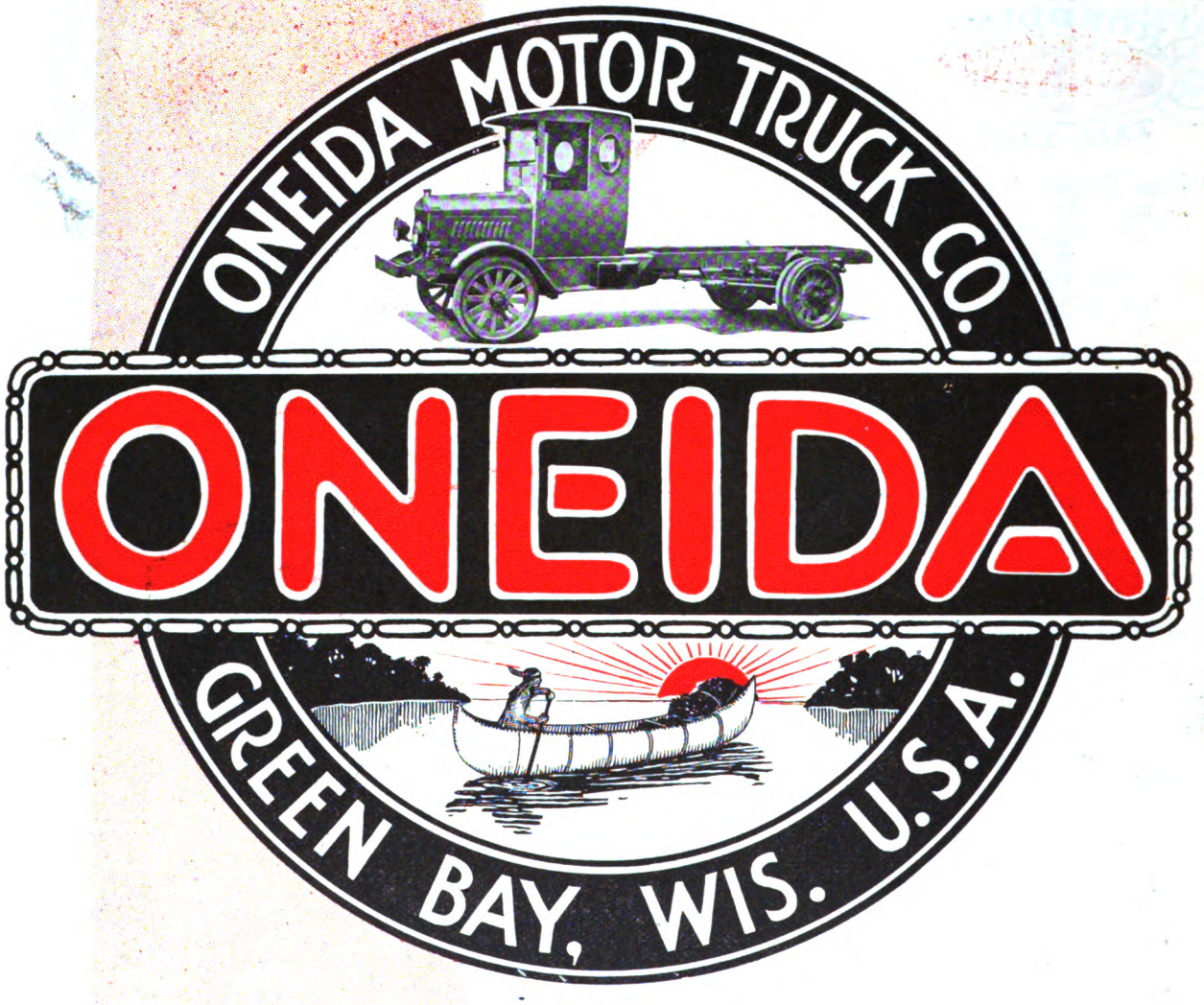
U. S. Patents Dec. 9, 1913; April 13, 1915; Dec. 4, 1917. Others Pending. Patented in foreign countries.



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The Mark of Good Trucks the Business World Over.

1-Ton, 1½-Ton, 2-Ton and 3½-Ton Models.



Quick Deliveries, Inspiriting Co-operation, Helpful Assistance of Sales-Making Character, Individualize Our Dealer Relations.

Merchandizers of Big Calibre, Properly Financed and Offering Required Business-Getting Qualifications. Read the next page.

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Figure What the ONEIDA Agency Will Be Worth Two Years from Now

Within the next few years the world has practically to be motorized for commerce. The motor truck industry, as a natural result, is on the verge of its greatest growth in history. To meet the demand—already heavy, already growing—

ONEIDA TRUCKS

are offered to dealers in 1918.

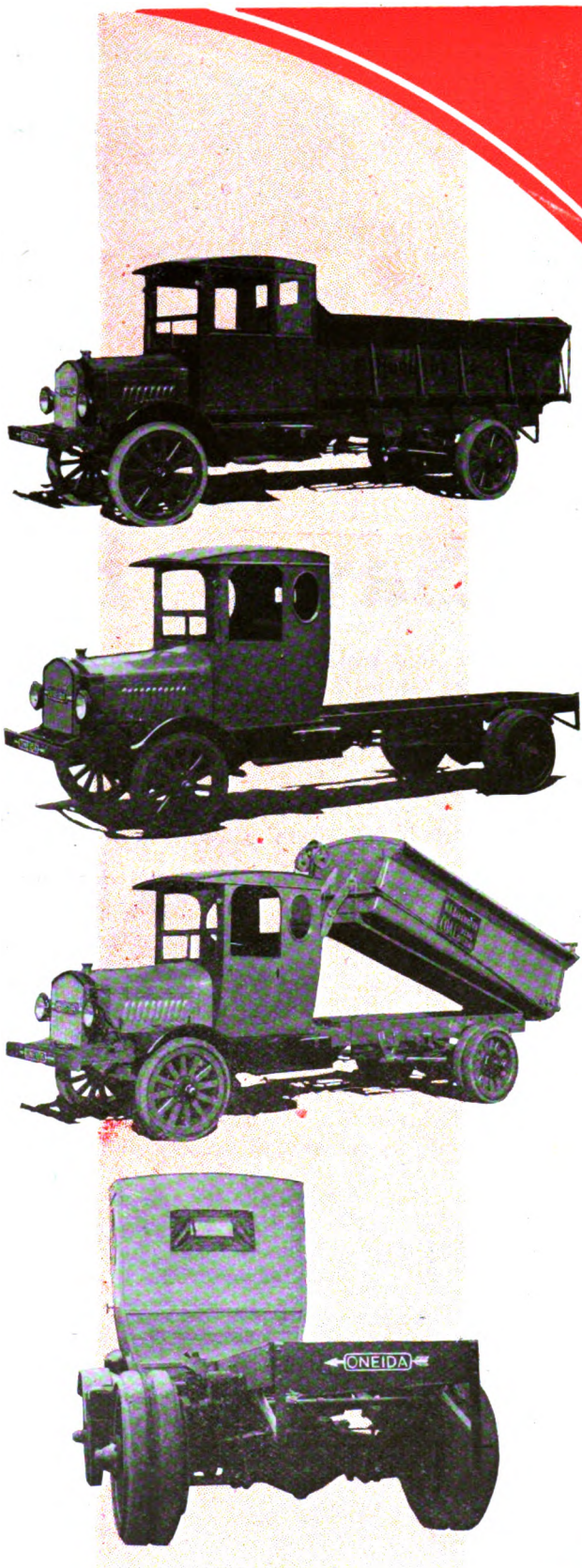
There is an insistent demand for trucks like ONEIDA—conforming to the most conservative and successful truck practice—refined through adoption of a number of exclusive patented improvements.

Because ONEIDA Trucks are new, rich territory is available for dealers of standing and initiative. Because ONEIDA Trucks are ready for delivery in the quantities dealers demand, the opportunity is alive with assurance of unqualified success.

Continental, Timken, Stromberg, Bosch, Cotta, Hele-Shaw, Ross, Spicer and Mather are names that speak for themselves. Perfectly co-ordinated in ONEIDA assemblage with special ONEIDA refinements, they insure quick returns that grow with re-orders.

Two years from now the value of ONEIDA agencies will be measured by a waiting list of dealers that **you** can avoid, by investigating ONEIDA'S future—and yours—**today.**

Oneida Motor Truck Company
Green Bay, Wisconsin



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$3 per Set of 3

Saves Ford rear end

Rear end trouble! That's a big bugaboo with Ford owners. One of the chief contributing causes is inefficient transmission lining. It gets hard and polished—then grabs and slips—and then there's **trouble to pay.**

The Ford comes to a stop amid heavy vibration and noisy chattering. The back end vigorously jumps up and down. The **direct shock** of this vibration is communicated through the drive shaft and gearing to the rear axle. No mechanism can stand such strain indefinitely. Rear end trouble is the **natural result.**

ADVANCE CORK INSERT

TRADE MARK REG. COPYRIGHTED 1917

TRANSMISSION LININGS FOR FORDS

Cork Insert Transmission Linings stop the grab and slip—eliminate the chatter and permit velvety smooth transmission action. They **save** the Ford rear end—prolong greatly the life and efficiency of the car. This alone would make the use of these linings economical and advisable. In addition, they outwear two to three sets of ordinary linings. Your garageman has them or can easily get them.

Dealers:

Order Cork Inserts from your jobber. Ask him how Cork Inserts are moving. He'll tell you they are a BIG WINNER. Stock them—recommend them — push them. They'll make you a lot of profit.

A non-slip Fan Belt for Fords

Cork Product will be exhibited at the New York and Chicago Shows



Authorities say that up to 50% of the "drive" goes to waste in the ordinary Ford fan belt, from slippage. It gets so hard and glassy that the fan speed is reduced, the engine isn't properly cooled and overheats. Cork Insert Fan Belts do not slip—they keep the fan fanning—keep the engine cool—are very long lived and economical.

Advance Automobile Accessories Corp.
Dept. L-13-1, 56 East Randolph St., Chicago, Ill.

Dealer's Coupon Check and mail today

ADVANCE AUTOMOBILE ACCESSORIES CORP.
Dept., L-13-1, 56 E. Randolph St., Chicago

- ☐ Send one dozen sets of Advance Cork Insert Transmission Linings for Fords.
- ☐ Send one dozen Advance Cork Insert Fan Belts, 1917 Ford.
- ☐ Send one dozen Advance Cork Insert Fan Belts, 1916 or earlier model Ford.

(Regular dealer discounts to apply)

Name .....

City ..... State .....

Jobber's Name .....

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This is Louis Chevrolet's O. K. Just As You Find It On Every AMERICAN SIX



When you raise the hood of an AMERICAN SIX you find this signature, just beneath the name plate, on the inside of the dash, in Chevrolet's own hand—"O. K. Chevrolet." This is the last touch that is put upon all finished cars as they leave the American plant, and it means that such cars have been passed and approved by Louis Chevrolet, head of the engineering organization behind this truly great car.

Taken by itself perhaps this is a small detail. But when you consider it alongside the record of unfailing service which the AMERICAN SIX is building up in the hands of owners and dealers you begin to see that it is a Big Thing.

Not a broken spring, a bad axle, a weak transmission or an underpowered engine among all the hundreds of AMERICANS that have been put upon the road this season! This fact and a large and fast-growing army of satisfied purchasers indicate the real significance of those little words—"O. K. Chrevolet."

A *road-tested car*—how often do you find it in these days of "quantity production"? The output of the AMERICAN SIX is growing fast but it is not yet so big that each car cannot be built right and proven on the road before it is put in your hands.

Louis Chevrolet's O. K. is a sure guarantee of the sterling qualities that set the AMERICAN SIX apart from lesser cars.

To Dealers and Distributors

Last month was a record month in the upbuilding of the AMERICAN SIX dealer organization. Contracts were closed for more than $5,000,000 worth of cars. In most cases these contracts were closed with dealers who had to be "shown." They came on to Plainfield, N. J.—where the AMERICAN SIX is built. They looked over the modern, well-equipped American plant. They "road-tested" the AMERICAN SIX on the hills of New Jersey and in the traffic of New York. They became acquainted with the manufacturing and sales organization that stands behind the AMERICAN SIX. And every one signed up right there on the ground *for more cars than he had first counted on.*

There is room in the AMERICAN SIX organization for still more dealers *of the right sort.* It may pay you to get in touch with us. *DO IT TODAY.*



American Motors Corporation

LOUIS CHEVROLET, Vice-President and Chief Engineer

FACTORY AND SALES OFFICES: PLAINFIELD, N. J.

When writing advertisers please mention Motor World—it identifies you

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Trade protection and consumer satisfaction distinguish this accessory line

BECAUSE the commercial success of any accessory depends on proper distribution, we believe protection to the trade is essential. We sell only to the legitimate jobber who in turn stocks the retail dealer—and allows him generous discounts even on very small orders. This means quick turnovers, dealer enthusiasm and more profit for all concerned.

Consumer demand—another important essential—depends on consumer satisfaction and consistent advertising. To prove that Johns-Manville accessories give satisfaction it is only necessary to point to Johns-Manville Non-Burn Brake Lining, the Johns-Manville Fire Extinguisher and the Johns-Manville Speedometer. Each excels in its own field through perfection of design and dependable quality. Ask your jobber or our nearest branch for complete information.

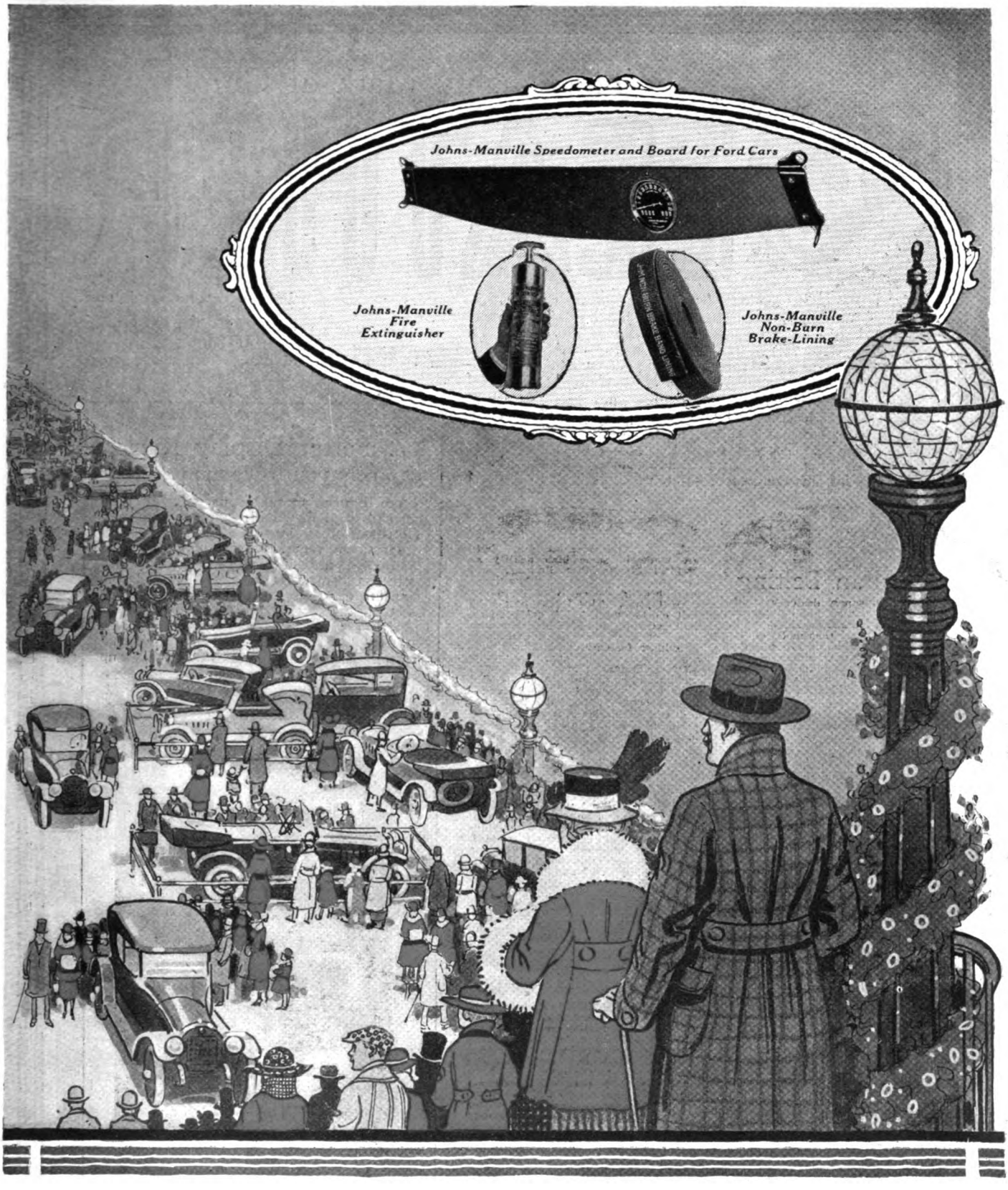
H. W. JOHNS-MANVILLE CO.
NEW YORK CITY
10 Factories—Branches in 56 Large Cities



JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

JOHNS—

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MANVILLE

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The Quality Mark of Good

HLB LEATHER

The HLB mark on leather is the equivalent to "Sterling" on silver, or "Tiffany" on jewelry. The HLB mark is your assurance that the goods are the *best* at the price. Truly, HLB is the quality mark of good leather. It is your protection, and your customer's protection—for this company resolutely stands back of every piece of its merchandise, and guarantees it unreservedly.

HLB leather goods are *not* being cut in quality to meet the acute leather situation. Quality is being upheld—that HLB jobbers and dealers will not destroy the faith that customers have in them.



HLB Wetprufe

Flat Fan Belting

Every auto supply dealer has daily demand for a high quality flat fan belting. WETPRUFE is filling that demand for thousands of live dealers. WETPRUFE, made of specially tanned oak leather, is heat, oil, and water proof. In 50 ft. rolls, from ½" to 1½" widths. You can recommend WETPRUFE to *any* customer.



HLB Wetprufe

WETPRUFE Ford Fan Belts are made in same high quality as WETPRUFE Flat Belting; laps are carefully cemented and stitched with heavily waxed linen thread—a perfect joint. This is the best Ford belt on the market. A quick seller, that creates and holds customers. Made endless, with quick attachable or clipper fasteners.



HLB Vee Sol

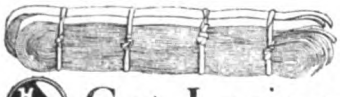
Fan Belting

Vee Sol Belting is a "V"-shaped solid leather belt designed for "V" pulleys. Made in any thickness, carefully and solidly cemented, and either bradded or sewed thru center with heavy linen thread. Guaranteed not to crack. 25, 50 and 100 ft. spools. in ½", ⅝" and ¾".



HLB VEEFLEX

A Laminated "V" fan belting for grooved pulleys. Each lamination both underlaps and overlaps the other and is securely riveted. Practically noiseless in operation—a giant for strength. 50 and 100 ft. spools, in ½", ⅝" and ¾".



HLB Cut Lacing

HLB rawhide cut laces are made from carefully selected stock. By actual tests they have proved strong and tough. Uniform in thickness, width and tensile strength. Ideal for lacing radiators and tire boots. Put up in 100-foot bundles of lengths convenient for automobile use.

The following sizes are offered: ¼", 5/16", ⅜", 7/16", ½", 9/16", ⅝" and ¾".



Leathertex Cone Clutch Facings

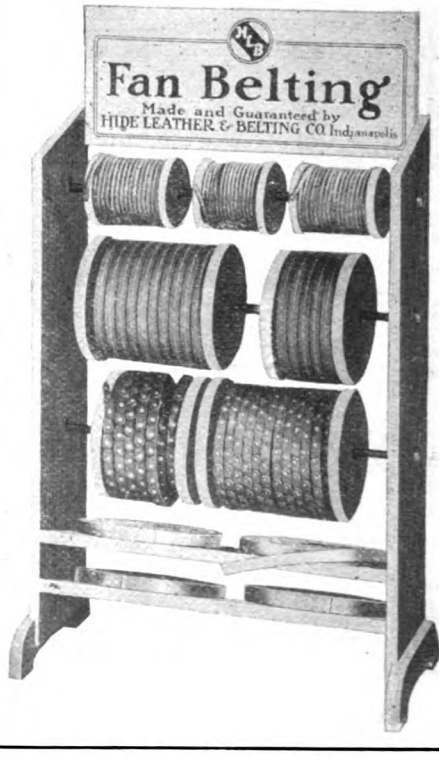
LEATHERTEX is a combination of carefully selected, specially tanned leather and textile—really merged into one element under 3,000 pounds hydraulic pressure—with a leather face for the clutch and a textile backing next to the cone.

More durable than solid leather—more resilient than solid leather—retains its shape longer and better than solid leather. It is absolutely uniform in tensile strength and thickness. Made for all makes and models of cars.

Write Today:—Jobbers and dealers who want to handle the BEST line of leather belts and parts should send at once for complete information on our entire HLB line. If you're especially interested in some particular article, don't hesitate to ask about it. Inquiries answered promptly. Jobbers desiring to install the HLB line should write at once for catalog, cuts, and particulars about our belting display rack.

A Better Display Rack
to help you make more sales

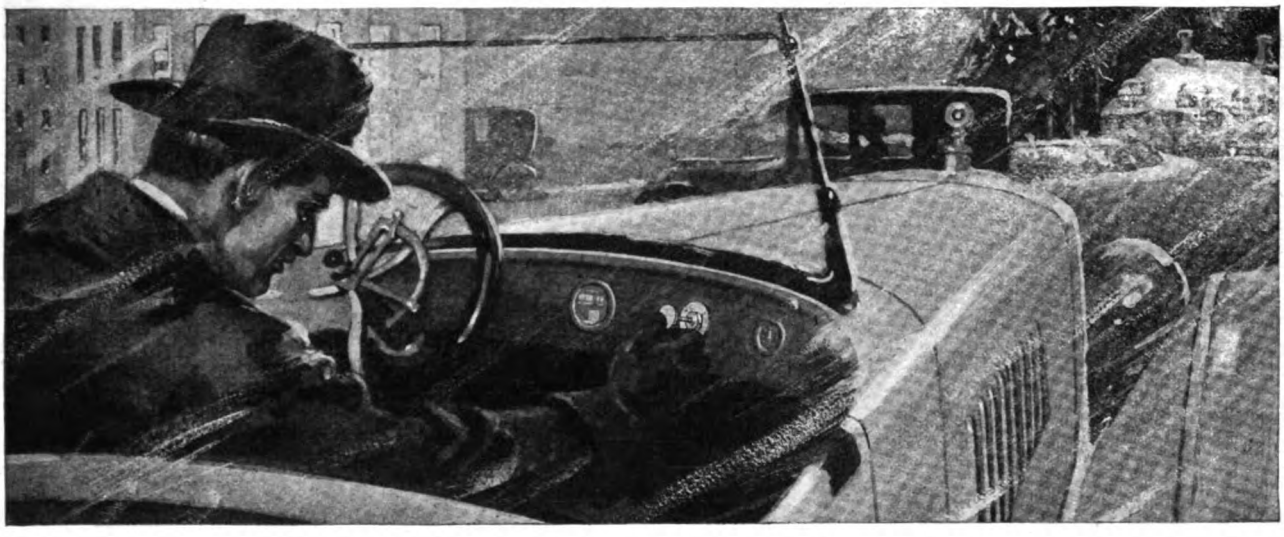
You'll make more belting sales if your stock is well displayed. Our special rack (illustrated) is furnished free to dealers ordering a general assortment of HLB belting. With this rack your belting stock is in one compact form, easily handled, and convenient to display to customers. Rack is 3 ft. high, 2 ft. wide and 1 ft. deep. Made of wood, surmounted by steel sign lithographed in colors. Let us know what belting you desire, and we'll make up assortment to suit.



HIDE LEATHER & BELTING COMPANY

219 S. Meridian Street Indianapolis, U. S. A.

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Two Winter-Time Motoring Necessities

Imperial Kantfreeze

Protects Against Costly Trouble-some Radiator Freeze-ups

At one-third the cost of alcohol, you can use **Imperial Kantfreeze Radiator Compound** and know absolutely that all winter long you will be free from a radiator freeze-up. Moreover, alcohol is vital to victory now. It should not be used.

Imperial Kantfreeze is absolutely free from acid. It cannot cause corrosion or injure the rubber hose or other parts of the cooling system. When used according to directions, you will be assured of a factor or safety far greater than with any other compound or liquid on the market. One application is sufficient for the entire winter, if properly used.

It is folly to rely on an unknown anti-freeze preparation Too much is at stake. Imperial Kantfreeze is 99% pure. The crystals dissolve immediately in hot water and leave no sediment.



The strength and quality of Imperial Kantfreeze has been thoroughly tested. Use it and you will never have to guess whether or not your radiator is fully protected, as is the case with too many compounds in which strength has been sacrificed for the sake of price.

Imperial Kantfreeze, in 6½ pound packages, sells everywhere for $1.50.

Imperial Primer

Starts Your Motor Instantly in Cold Weather

Cold weather starting troubles will be forever banished if your car is equipped with an Imperial Primer. One stroke of the plunger, within easy reach on the dash-board, sprays **fireable, vaporized** gasoline into the manifold, and enables you to start instantly in coldest weather without the muss or fuss usually incident to winter motoring.

The Primer is easily installed on any make of car. For women drivers there could be no arrangement more simple or ideal. No priming through pet-cocks; no standing in the snow or rain.

Fill the Auxiliary Tank with high test gasoline two or three times during the season and you are assured of an **instantaneous start every time,** no matter what grade of fuel is used in your main gasoline tank. The ordinary grade of low test gasoline supplied at present can be used, if a high test product is not obtainable.

The quick starting, effected by the Imperial Primer, prevents any drain on your batteries. This feature alone is worth many times the price of the outfit—$6 complete.

The Imperial Primer is in its fifth year of successful service and its dependability is enthusiastically vouched for by thousands of satisfied users. For sale at all high-grade dealers. Satisfaction guaranteed, or money refunded.



DEALERS—Imperial Kantfreeze Radiator Compound and the Imperial Primer are a strong combination for swelling winter-time profits. Write to-day for details of our proposition.

THE IMPERIAL BRASS MANUFACTURING COMPANY

1221 West Harrison Street, Chicago, Ill.

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PARRY

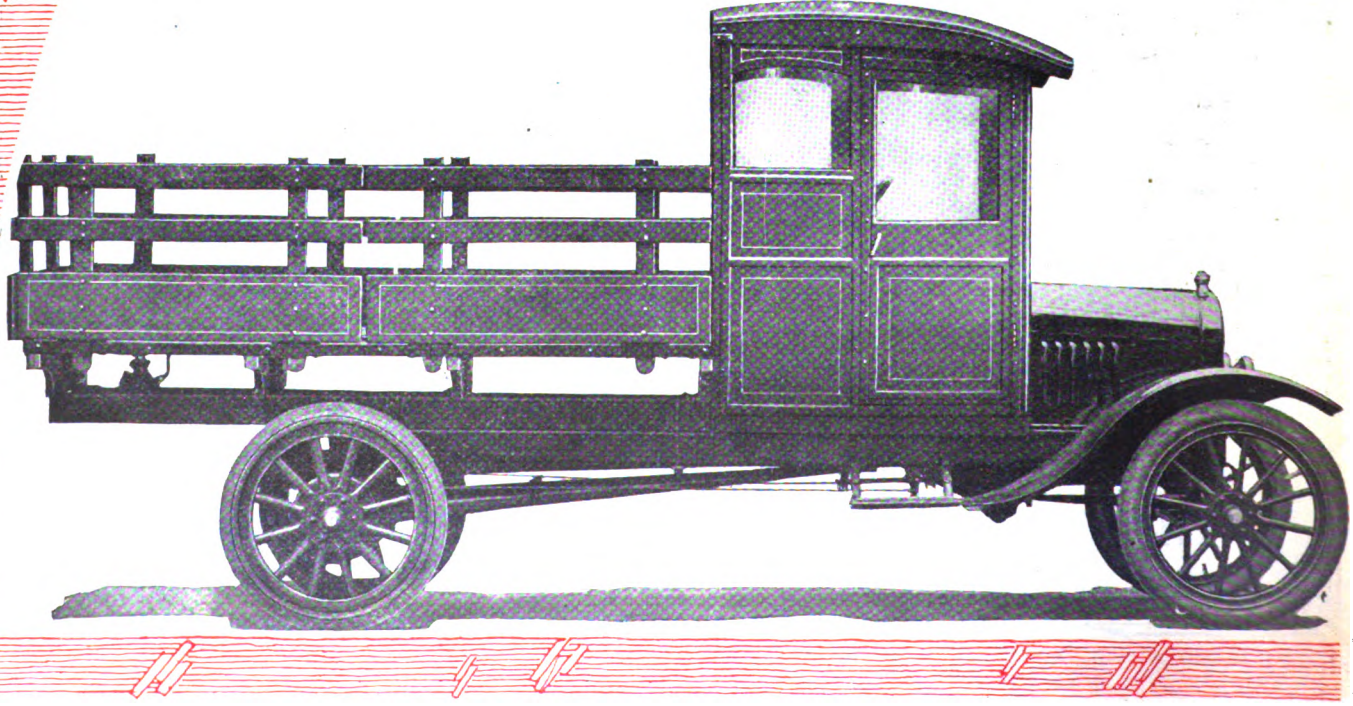
at the New York & Chicago SHOWS

New York Show, Jan. 5th—12th

At this show our exhibit will be located on the 4th floor of the Grand Central Palace and a cordial invitation is extended to all dealers to call and familiarize themselves with the Parry Line.

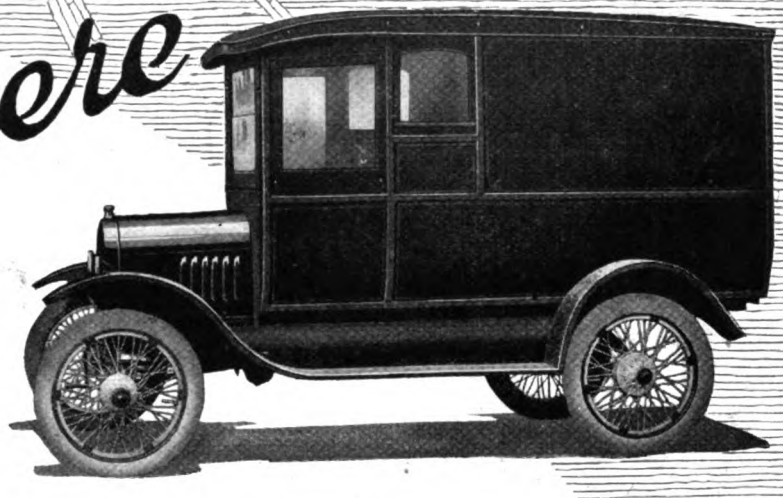
Chicago Show, Jan. 26th—Feb. 5th

Our display here will be located on the 2d floor of the Coliseum Annex, where dealers will have full opportunity of inspecting Parry Bodies and learning more about the Parry dealers' proposition.



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BODIES Everywhere



Parry Bodies for Fords and all Ton Trucks

Parry Bodies are standardized in construction to such an extent that with slight changes in the sills they may be adapted for use on practically all one and one and a half ton truck chasses.

These Parry Bodies—such as illustrated on the opposite page, are built especially for the Ford one ton truck chassis. In addition, we make bodies of all types which are adaptable to nearly all other one and one and a half ton trucks.

Dealers handling the Parry Line have a complete assortment to show to the prospect. Regardless of what business the customer may be engaged in, there is a Parry Body especially designed for his specific requirements. ***Parry ships bodies the same day orders are received.***

Dealers visiting either of the National Shows should make appointments in advance with our Sales Manager, that our proposition may be thoroughly explained, and the goods on the floor examined. You are urged to make the Parry Display your headquarters while there.

Whether or not you are handling the Parry Line, the exhibit will be of especial interest to you, for at this time truck transportation is of vital importance in the minds of American business men, and there are great profits to be made in the commercial field.

Parry Manufacturing Co., Indianapolis

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DUTCH-BRAND

Meet the Dutch Girl at Chicago



Standard Products the Motor Trade Over



All leading jobbers and dealers now handle Dutch Brand Products. Dutch Brand Products are products every car owner uses and needs. They will make money for any dealer. They are not one time sellers—but **repeaters.** Once introduced they start an endless stream of business. Stock the complete line—

2-In-1 Tread Filler, a liquid rubber, quickly closes causing bruises; **Radiator-Seal** instantly stops radiator leaks; **Auto Patching Cement** insures a patch that will stick and stay stuck; **Rubber-Seal** permanently heals large cuts and gashes in casings and tubes; **Vulcanizing Cement** for use with small portable vulcanizers, or for shop use; **Carbo-Cide,** a carbon solvent of unsurpassed merit; also **Valve Grinding Compound, Auto Top** and **Cushion Coating, Gasket Shellac, Varni-Brite,** and **Auto Polish, Tire Talc** and **Friction Tape.**

DEALERS: Stock through your jobber.

JOBBERS: Be sure to list Dutch Brand Products in your spring catalog. Send for electros.

During the Chicago Show visit our exhibit at Hotel La Salle, Booth 6, Mezzanine floor. The Dutch Girl will be there to meet you.

VAN CLEEF BROS.

Manufacturers Dutch Brand Rubber Cements and Auto Chemical Specialties

7701-7711 Woodlawn Ave. " " " Chicago, Illinois

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Red Head



TRADE MARK REG. U.S.PAT.OFF.

Vitristone PLUG



Vitristone is making good.

Vitristone is standing up in motors that are terrors to porcelain plugs.

Vitristone makes porcelain plugs obsolete.

Vitristone is not a substitute—it is the successor of porcelain as a spark plug insulator.

Vitristone is to porcelain what a stone crock is to a China cup.

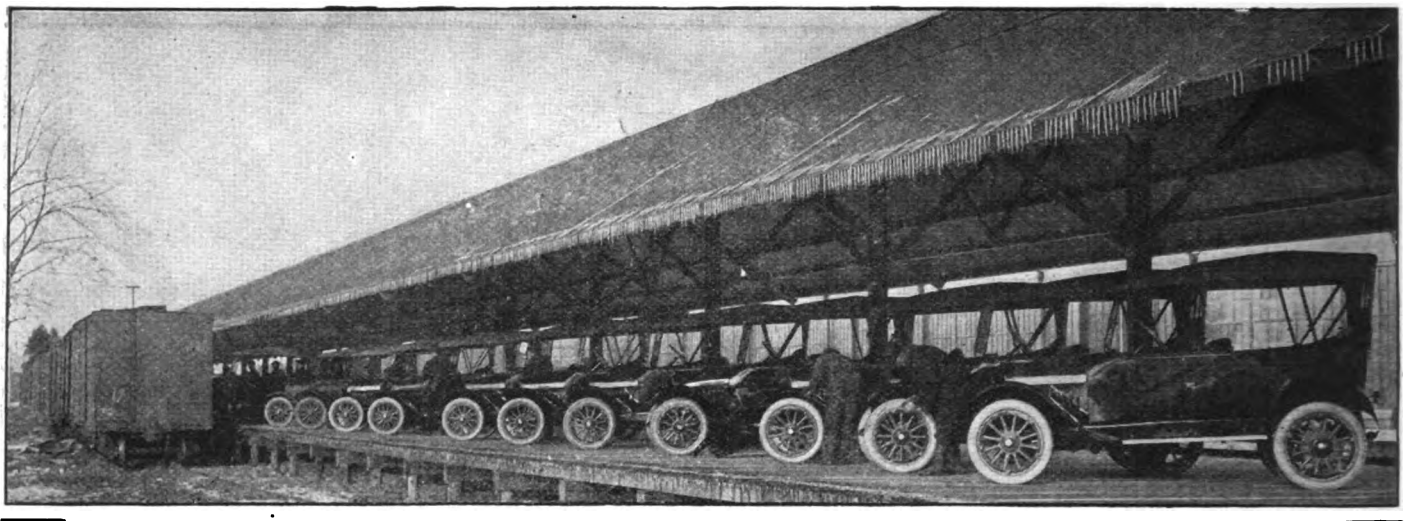
You don't have to pay more for Red Head Vitristone Plugs, but you must buy Red Heads to get Vitristone—it is made for and used exclusively in Red Heads.

When you buy Red Heads, insist on plugs with the red-enameled bushing—as shown in the cut. Only then are you sure of Vitristone.

Emil Grossman M'f'g Corp'n
Bush Terminal
Model Factory No. 20
Brooklyn (New York City)

See the Red Head Exhibit, Grand Central Palace
4th Floor, Space D-159 & 160

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Our Duty To Our Distributors

Picked motor car distributors in virtually all the leading cities of the United States hold five-year contracts with this Corporation.

Under these contracts these distributors buy and sell; under these contracts we build and deliver.

WE MUST KEEP THESE DISTRIBUTORS PROFITABLY, PERMANENTLY IN BUSINESS.

HARROUN

The period immediately before us will bring no sales problem for the automobile merchant who has Harroun cars to sell.

A new economic condition is filling as never before the pockets of the farmer, the business man and the skilled laborer.

But the SUPPLY of cars in the popular priced field WILL SURELY RUN SHORT.

Production in 1918 will be the lowest in any year of the last five. It will be under rigid limitation.

Patriotic service and the lure of government-order profits will absorb much of the industry's efforts.

To this patriotic service the Harroun Motors Corporation has unhesitatingly assigned space, equipment and capital. But this assignment was so made that it will aid, rather than hamper the rapidly increasing production of Harroun Motor Cars.

Second only to our duty to our country stands that duty which we owe our distributors and dealers.

We are in the automobile business TO STAY.

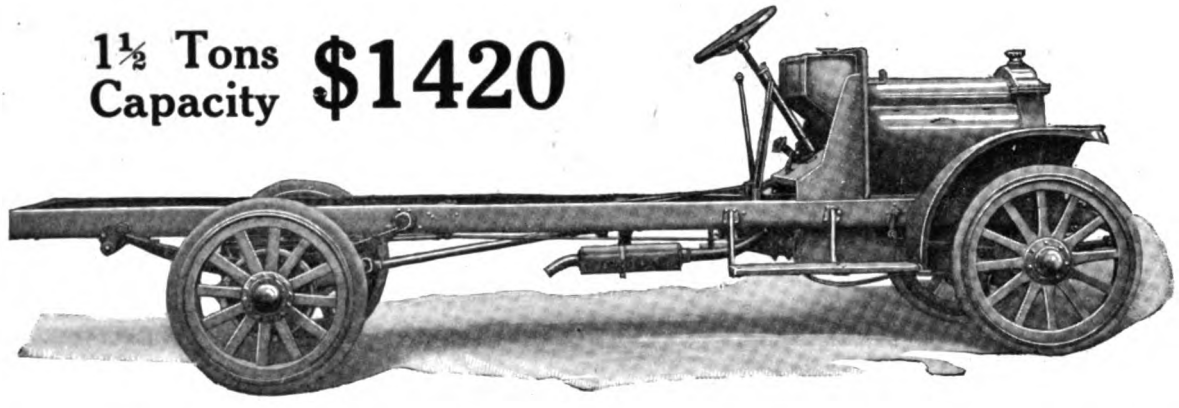
Harroun Motors Corporation

Factories and Offices, Wayne, Michigan

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FULTON MOTOR TRUCKS

1½ Tons Capacity $1420



THE Fulton chassis has been amplified in the new FX Model for 1918, and still stands as the most powerful, sturdy and lowest priced truck in its class.

Its power plant is of the famous Herschell-Spillman design.

Its Russel rear axle, of internal-gear type, is known countrywide.

Its frame is full two-ton size.

Its loading platform of 9 ft. from rear of cab to end of frame is ample and roomy.

Its rear axle is set well back to balance overhanging bodies.

The Fulton radiator is not surpassed by any other radiator on *any* truck at *any* price.

Low operating records of 1.6 cents per ton mile in gasoline consumption has made hundreds of Fulton sales and will continue to stand in the record class.

Dealers are urged to critically inspect the Fulton chassis at the New York and Chicago Shows.

The sale of Commercial Trucks affords a quick and logical solution of the business problem, precipitated by a startling shrinkage of the public interest in pleasure cars.

One source of income has been curtailed—another must be opened.

Today is the time to seek a truck agency contract—the Fulton contract, if your territory is open.

You will *need* this truck business—You can get deliveries—Conditions are *making* the sales.

The government advocates trucks for short hauls to relieve the railroads.

Business men are buying trucks as never before—every line of business is speeding up.

And the concerted effort of the automobile fraternity is getting behind the motor truck to put it across next year in a great big way, because it is conceded that *the time is ripe.*

New York Show Exhibit—Waldorf-Astoria Hotel

Chicago Show Exhibit—Auditorium Hotel

Fulton Motor Truck Company

Farmingdale-Long Island-New York

Distributors In—Boston, Hartford, Providence, New York; Trenton, N. J.; Newark, N. J.; Philadelphia, Scranton, Pittsburgh, Buffalo, Rochester, Detroit, Minneapolis, Savannah, Norfolk, Louisville, Indianapolis, Chicago, Milwaukee, Omaha, Kansas City, Dallas, El Paso, Spokane, Montreal and Quebec

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Power—Front and Rear

F W D TRUCKS

THE construction of the F-W-D Truck is so simple and the principle so obviously efficient that no mechanical knowledge is necessary to understand why it is dependable, durable and economical. F-W-D Trucks employ the principle of four wheel drive—that is, power transmitted to the front as well as the rear wheels.

This equalized power divides the strain between the front and rear axles—the rear wheels push and the front wheels pull, raising themselves over obstructions and uneven places. The traction being equal in all wheels, the wear on all tires is equally divided. All of these conditions mean added life, efficiency and dependability.

Write for illustrated catalog and booklets describing in detail the principle and giving many proofs of the positive investment value of F-W-D Trucks.

Dealers will find F-W-D Trucks have more demonstrable selling points than any other truck made. A limited number will be available for industrial purposes. Write for particulars.

FOUR WHEEL DRIVE AUTO CO., Dept. P, Clintonville, Wisconsin

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Tonford

TRADE MARK

INTERNAL GEAR DRIVE CHAIN DRIVE

Owing to the tremendous increased demand for Tonford units for domestic and export business and for war purposes, we have been forced to more than double the capacity of our plant.

For the first time in months we are now in position to take on a few more energetic, dependable dealers.

There is still some very fertile territory open in which Tonfords are in demand. This is indicated by direct inquiries coming to us. We have been too busy filling orders to cover the field.

Look the field over and if you do not see the Tonford signs—write or wire immediately. It's your opportunity to line up with the happy, prosperous Tonford family.

Our 1918 campaign is going to be the strongest we have yet attempted, and coupled with our well established dealer sales co-operative policy of the past will make more rich Tonford dealers than we have made this year.

Detroit Truck Company

Dept. "A." Detroit, Mich.



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BEST IN THE LONG RUN

FAIR TREATMENT

Begin 1918, A TESTED TIRE Dealer

CERTAINTY of product and certainty of profit are the foundation stones on which Goodrich urges the tire dealer to build 1918 business. In the coming critical year, the dealer must have *sure* profit. The tire user will demand *sure* tire service. Goodrich provides both in Goodrich Tested Tires.

From the great national testing of the Test Car Fleets—Goodrich brings certainty of tire service to the dealer, proved in thousands and hundreds of thousands of miles of wear-and-tear tests.

SILVERTOWN CORDS or **BLACK SAFETY TREADS,** Goodrich Tires have conquered the roughest roads, and won their right to the title, "America's Tested Tires." The roads of America vouch for—

GOODRICH

TESTED 

TIRES

THE Goodrich Dealer, *sure* of his *tested* product, is *sure* of his profit, because the greatest forces in tire selling are back of him for 1918.

Read all the Goodrich dealer sign "Goodrich Tested Tires" means to you, a tire dealer.

It means quick sales, turning your money over again and again during the year; for the long record of Goodrich good faith, backed by the word and deed of TESTED, will bring to your store the motorist demanding the *sure service* of *proven tires*.

THE CITY OF GOODRICH · AKRON, OHIO.

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BEST IN THE LONG RUN

FAIR TREATMENT

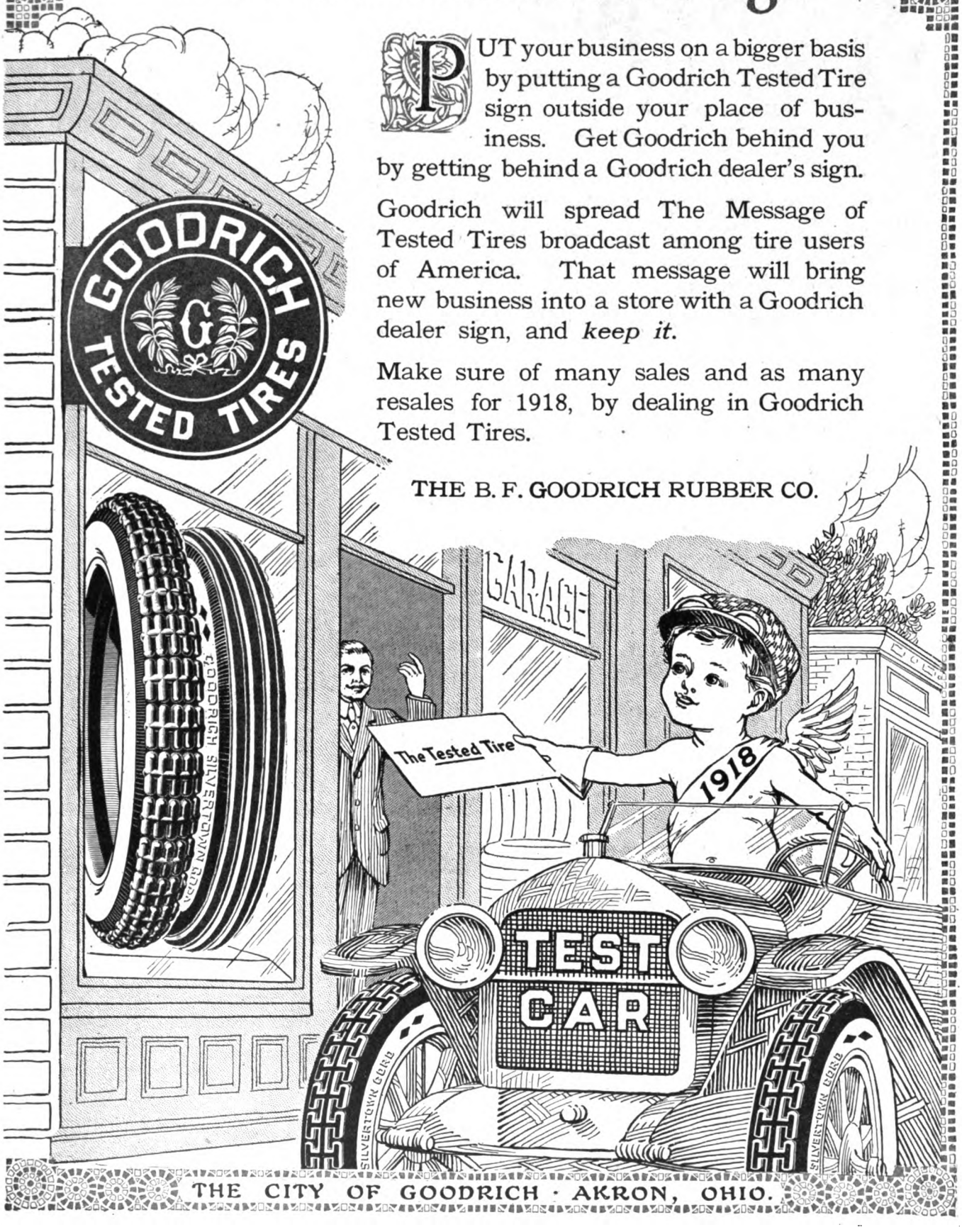
Enlist a Goodrich Dealer Sign

PUT your business on a bigger basis by putting a Goodrich Tested Tire sign outside your place of business. Get Goodrich behind you by getting behind a Goodrich dealer's sign.

Goodrich will spread The Message of Tested Tires broadcast among tire users of America. That message will bring new business into a store with a Goodrich dealer sign, and *keep it.*

Make sure of many sales and as many resales for 1918, by dealing in Goodrich Tested Tires.

THE B. F. GOODRICH RUBBER CO.



THE CITY OF GOODRICH · AKRON, OHIO.

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There's a Draft Horse and a Racer in Every Wagner Starter

When the engine is stiff and hard to turn over the Wagner Starter hitches up real draft horse power that never fails to do the work.

As resistance lessens, the turn-over gains momentum, draft horse gives way to racer, and speed makes quick work of cranking.

This draws the minimum from the battery, because power changes to speed the instant it's no longer needed, and speed gets thru so quickly it consumes little current.

The Wagner Starter

The Starter that is built to order

is made by a Company which has been building the highest quality motors and generators for over a quarter of a century. As motors and generators are the two factors in an automobile starter, the superior ability of the Wagner Company to build starters is unique and without parallel.

Wagner Electric Manufacturing Co.

St. Louis, Mo., U. S. A.

Factory Branches and *Maintenance Stations { *New York *Chicago *Philadelphia *St. Louis *Boston *Cleveland *Pittsburgh *Detroit Buffalo *San Francisco Milwaukee Cincinnati *Los Angeles *Minneapolis *Kansas City Seattle *Indianapolis St. Paul *Denver *Portland *Atlanta Syracuse Springfield, Mass. Montreal Toronto

Selling Agencies: New Orleans Memphis Salt Lake City Dallas London, Eng. Melbourne, Australia

Wagner Maintenance Stations

Wagner owned and operated Maintenance Stations have been established in sixteen cities, located as nearly as possible to give one-day service to owners of Wagner Starters. These Maintenance Stations are fully equipped with Wagner Starter machinery, tools and parts. They are in charge of Wagner factory-trained men, and all work, except inspection, which is free, is figured in advance from factory-fixed and printed prices.

Owners of cars equipped with a Wagner Starter are urged to make use of these Maintenance Stations for occasional inspection, and for all repairs or adjustments.



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IMPORTANT ANNOUNCEMENT

TO

TIRE JOBBERS

AND

TIRE DEALERS

BY

The Bucyrus Tire & Rubber Company

Bucyrus, Ohio



We wish to INTRODUCE to the trade our new "RIBBED TREAD" Bucyrus Casing which we are now prepared to furnish.

This new creation is in addition to our **well** and **favorably** known **Bucyrus** non skid casing and Red and Grey inner tubes.



During the season of 1917 although our production was increased one hundred per cent we were unable to accommodate the JOBBERS and DEALERS who considered our line the most **profitable** to handle and for that reason we have made extensive additions to our factory and equipment which are now completed and will again double our present output, permitting us to serve additional customers and new territory.

To those JOBBERS and DEALERS who wish to deal direct with the FACTORY, who wish to ELIMINATE PRICE CUTTING COMPETITION by other JOBBERS and DEALERS handling the same line in the same territory, who wish to handle a line equally as GOOD or BETTER than heretofore at a GREATER DISCOUNT to the trade, meaning more PROFIT to YOU, who wish to handle the line EXCLUSIVELY, whose trade demands a HIGH GRADE TIRE without a mileage guarantee or a fully GUARANTEED line. To such JOBBERS and DEALERS our line appeals most FORCIBLY.

Our increased production is being rapidly absorbed and if you wish EXCLUSIVE TERRITORY and REAL PROTECTION do not delay, get your application in at once; 1918 Contracts being closed now.

Territory alloted to RESPONSIBLE JOBBERS and DEALERS only and in the order in which applications are received; delay may mean that your COMPETITOR will have our line and we assure you that you will be unable to COMPETE SUCCESSFULLY with our JOBBERS and DEALERS.

In making application state territory desired, and amount of business last year.

The Bucyrus Tire & Rubber Company

Bucyrus, Ohio

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Iowa

COMMERCIAL CHASSIS
Universal Units
Are for Other Cars as Well as Fords

Prices For Ford Cars

1-ton Model E, 116" Wheel Base, 32x3½" Tires.....$390
1-ton Model E, 144" Wheel Base, 32x3½" Tires..... 415
2-ton Model O, 116" Wheel Base, 32x3½" Tires..... 490
2-ton Model O, 144" Wheel Base, 32x3½" Tires..... 515
The Universal Unit fitting all makes of cars, except cars with transmission on the rear axle.
1-ton Model E, 130" to 140" Wheel Base, 32x3½ Tires 400
2-ton Model O, 130" to 140" Wheel Base, 32x3½ Tires 490
34x3½" regular tires and 34x3½" dual tires can be furnished at small extra cost.

The IOWA Chassis offers dealers an almost unlimited field for sales, because, unlike other units, both IOWA Models will fit all makes of cars except cars with transmission on the rear axle.

Don't tie yourself down to a single model unit that is only for Fords. The IOWA Chassis—1 and 2-ton models—gives you a chance to make real profits.
We can fill orders promptly.

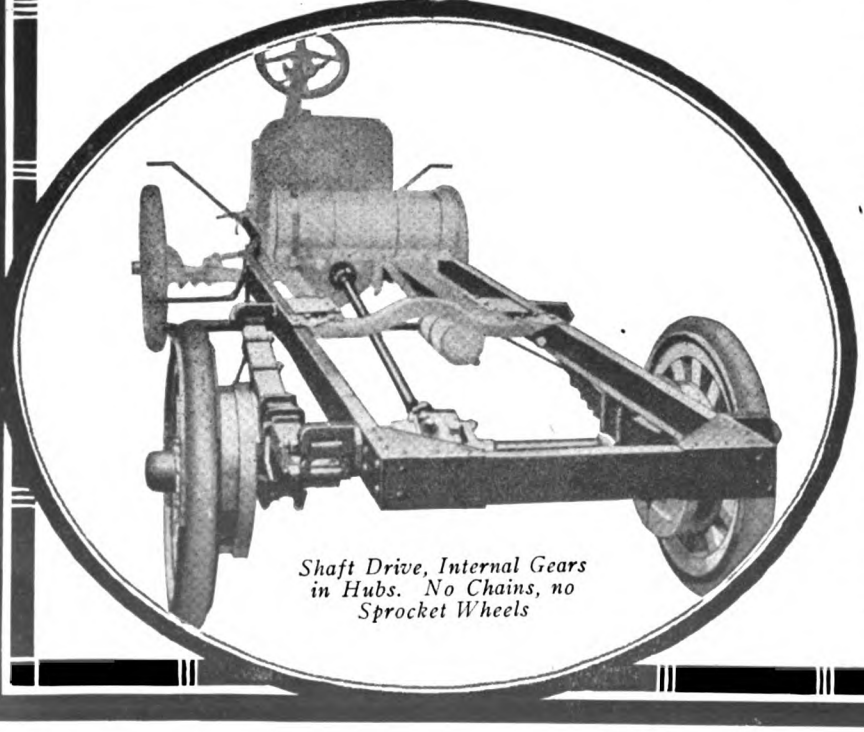
Note the Opening of Our New Omaha Branch

To increase the efficiency of our selling organization, for the benefit of dealers and owners alike, we are opening a branch office in Omaha, Nebraska, which will operate under the name of The Iowa Motor Truck Company.

Mr. H. H. Cannon, 245-7-9 Omaha National Bank, will act as our branch manager.

The IOWA Commercial Chassis—either 1 or 2-ton model—is the best converter buy on the market.

Dealers and Users, write for complete details. Remember, **it is for other cars as well as Fords.**



Shaft Drive, Internal Gears in Hubs. No Chains, no Sprocket Wheels

Iowa Motor Truck Company
OTTUMWA IOWA

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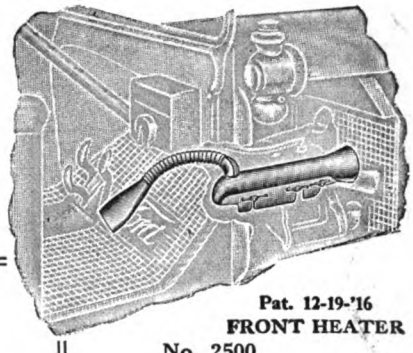
The NEW Presto Car Heater For All Ford Cars

Front Heater $5

Rear Heater $6.50



No. 2600—Gives abundance of heat; just where you need it most.



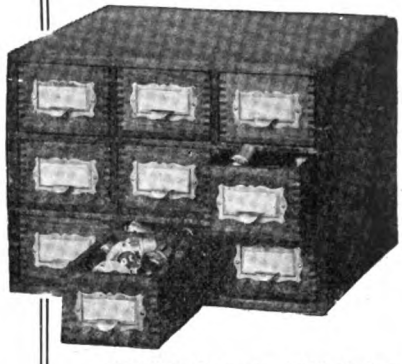
Pat. 12-19-'16
FRONT HEATER
No. 2500

Presto Specialties



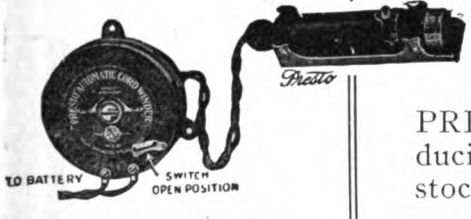
Patented

No. 2100 — PRESTO Electric Heater for Auto Engines, Carburetors and Radiators. $4 in U. S. A. $6 in Canada.



PRESTO Connector Cabinet Furnished Dealers, Garagemen and Supply Houses, with connectors or without.

Are In Practically All Jobbers' Catalogs— All Dealers' Stocks



No. 252 — Combination Cigar Lighter, Holder and Cord Winder, $5.00. (Four other styles.)

PRESTO Specialties set the pace, introducing many new products it pays to stock.

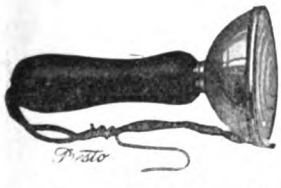
The complete line of PRESTO Heaters; Cigar, Pipe and Cigarette Lighters; Trouble and Hand Lamps; Cowl, Dash and Step Lights, are standard the automobile world over. PRESTO Switches, Adapters, Plugs and Lamp Sockets comprise another famous line.

Practically all Jobbers catalog the PRESTO Specialties. Practically all live dealers sell them.

JOBBERS: Send for electros of new PRESTO Specialties for your next catalog.



No. 230-S — Combination Dash and Trouble Lamp with Lever Switch. (Made in four styles.)



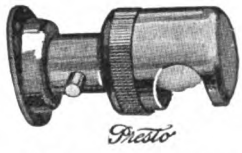
No. 286 — Inspection Trouble Lamp. (Three other styles.)



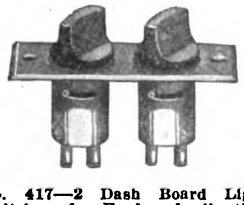
No. 655-S—Metal Dash Lamp (4 styles for wood and metal dash).



No. 3-P—Dash Board Y Plug Socket.



No. 647-S — Bull Pup Dash Lamp, one of 18 styles of Dash Lamps.



No. 417—2 Dash Board Light Switches, for Ford and all other Lighting Outfits. Single or two, three or four gang.



No. 185 — Double End Focusing Socket for Ford headlights.



No. 8 — Elbow Plug for Ford Headlights.



No. 4-C—Converting Plug

SLOTS IN RUBBER



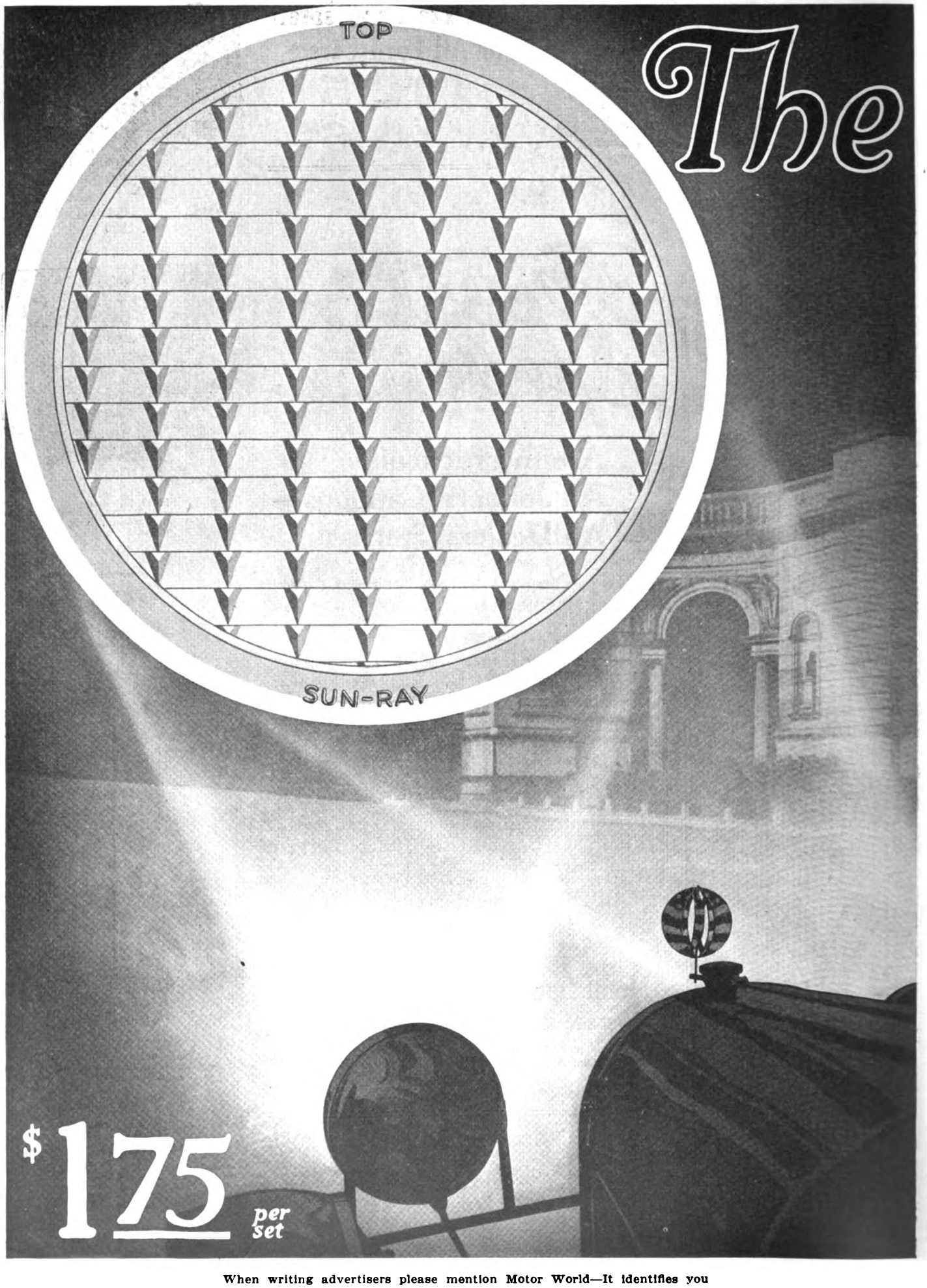
All weather protector for Ford cars. Keeps out the cold winds.

Metal Specialties Mfg. Co., Inc.

338-352 N. Kedzie Ave. Chicago

Eastern Branch: 16-24 W. 61st St., New York.
Western Branch: 149 New Montgomery St., San Francisco, Calif.

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Sun-Ray Lens

At Last!

A popular priced lens that meets every legal requirement

EVER since automobile headlight lenses were put on the market the motoring public has been forced to pay extraordinarily high prices for them—prices out of all proportion with the cost of producing the lenses themselves.

But here is a new lens—the Sun-Ray—that gives you everything the other lenses give and more. It is manufactured by the most approved methods and from the best materials—yet it sells *profitably* at $1.75 a pair.

All the other lenses can be grouped in two main classes. One class diffuses light, the other class deflects or refracts it.

The diffusing lens takes the strong light rays from the reflector and scatters them in all directions, making a wide area as light as day in front of your car.

By its very nature it precludes the possibility of a sharp, bright penetrating *distance beam.*

The refractive or deflective lens gathers up all the light rays and redirects them down in a *concentrated narrow beam on the road*—a beam so narrow as to make night driving dangerous since both sides of the road are dark and turning is therefore hazardous.

It was with a full knowledge of these deficiencies that we entered the field determined to produce a lens that would prove *truly effective.* At the same time we determined to market our lens at a fair price to the public, with a fair profit to ourselves and our selling agencies.

The result is the Sun-Ray lens—priced at $1.75.

It gives motorists for the *first time* a lens that *both* diffuses *and* refracts the light. It shoots a long concentrated beam of road light far ahead, showing every inch of the highway. And it does *more.*

It gives you a side diffusion *of 168 degrees,* lighting up ditches, curves, crossroads and signs.

It gives you all the advantages of diffusion *plus* the advantages of deflection and meets the complicated legal requirements of every State in the Union. The Sun-Ray distance beam is the necessary 42 inches above the road at a distance of 75 feet ahead of the car. This distance beam, which is bound to rise and fall with the irregularities of the road, does not glare.

The hard, biting horizontal beams are *partially broken up* by a number of thick triangular prisms on the inside of the glass. This feature, in addition to giving tremendous side diffusion minimizes glare without in any way interfering with the effectiveness of the road light.

The clear parts of the Sun-Ray light are thin, thus reducing the absorption common to the thicker lenses—and the outside surface is absolutely flat and smooth, preventing dust, snow and mud from collecting on the glass and dimming your light.

Consider all these advantages. Then consider the price of the Sun-Ray—*just $1.75 per pair.*

The field that such a lens, at such a price, opens to dealers is tremendous—and constantly growing.

We want jobbers in every important center in the United States. We want dealers in every community. Write or wire at once for territory.

THE PRISMOLITE CO., 4th and Gay Streets, Columbus, Ohio

Every size for

$1.75 per set

25c additional west of the Missouri River.

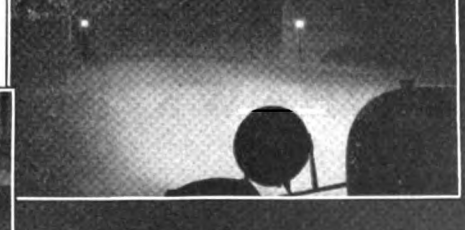
The refractive type of lens sacrifices diffusive side lighting for a bright beam of light concentrated on the road.

The diffusive lens gives wide side lighting but its very construction precludes the possibility of a bright "distance beam."

The Sun-Ray lens combines the advantages of both the diffusive and refractive types.







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How do you Size up a Tire?

A Tire is judged on just one thing and that's performance. The way it stands up in service—its dependability—its capacity to negotiate the extra miles.

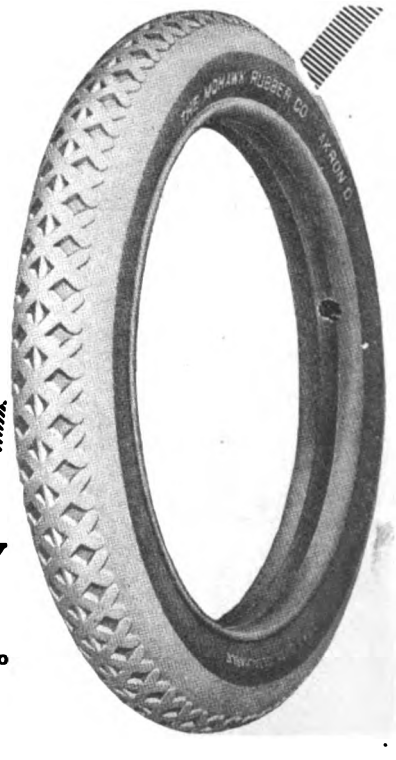
But back of performance there's a vastly bigger thing and that's quality—for on quality depends performance and—everything else of virtue in tires.

Quality is the great predominant thing in Mohawk Tires. In the materials used, in the workmanship, in the whole careful process of manufacture they have been held unalterably to the highest possible standard.

Non-Skid Tires that are really non skid.

MOHAWK *Quality* TIRES

Tires built to grip the ground



Mohawk Tires are made of pure gum—only the finest Para and Ceylon Plantation Rubber is used. This, combined with genuine Sea Island Cotton with no skimping of either, makes a mighty healthy combination.

Then in the actual making we've put quality, too. Our modern factory with its thorough equipment is presided over by men who for a decade have been leaders in tire making—men out of whose ripe experience comes absolute certainly as to the best methods.

Mohawk Tires are distinctive in appearance and unparalleled in performance. Dealers will find in them the correspondingly great opportunity for profits—liberal profits—continuous profits.

Our trade proposition will be of interest. Write for it.

MOHAWK RUBBER COMPANY

Akron, Ohio

New York
Chicago
Atlanta
Boston
Kansas City
San Francisco

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Sell the Public What It Wants



YOUR customers are not demanding that a car have a certain number of cylinders.

They are not even demanding that a car get its power from an internal explosive engine.

They are not demanding gas cars any more than they are demanding steam cars.

They are not demanding anything in an automobile except a better performance.

What your customers want is a car which will run with a soft, smooth, gliding motion—without any noise or vibration, even at highest speeds—a car whose energy does not depend upon the speed of a fly-wheel; but whose power is stored in advance—whose maximum effort is just as available at low speeds as at high.

Your customers are not demanding a better carburetor—a better clutch—a better gearshift—or a better self-starter—what they are demanding is none of these devices at all, but emancipation from them.

Instead of demanding six or eight or twelve cylinder engines—what your customers really want is a smooth, safe, flexible ride—one-finger control. What they really want is comfort—safety—simplicity.

And they want a car whose fuel is kerosene.

If there is any advantage in selling your customers what they really are demanding—

If there is any advantage in delivering them the kind of performance they have always wanted in an automobile—

Then the franchise for the sale of the Stanley Steam Car in your territory is the best business asset you could get.

STANLEY MOTOR CARRIAGE CO.
NEWTON, MASS.

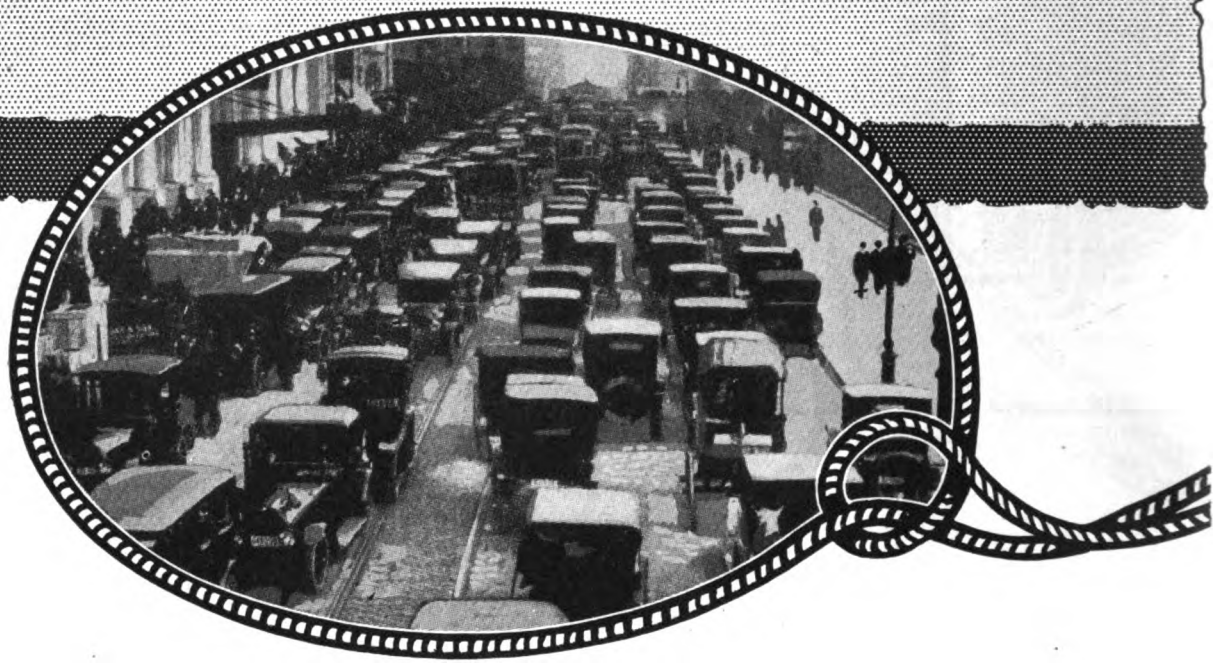
Touring Cars $2400

STANLEY

STEAM 22nd year CAR

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Corral the



Through its double life and remarkable all 'round superiority the VESTA is literally corralling the battery business for its dealers.

Motorists are beginning to realize that the storage battery is the mainspring of their starting and lighting system and on many cars it is as important as the engine itself, for on these it also supplies the current for ignition.

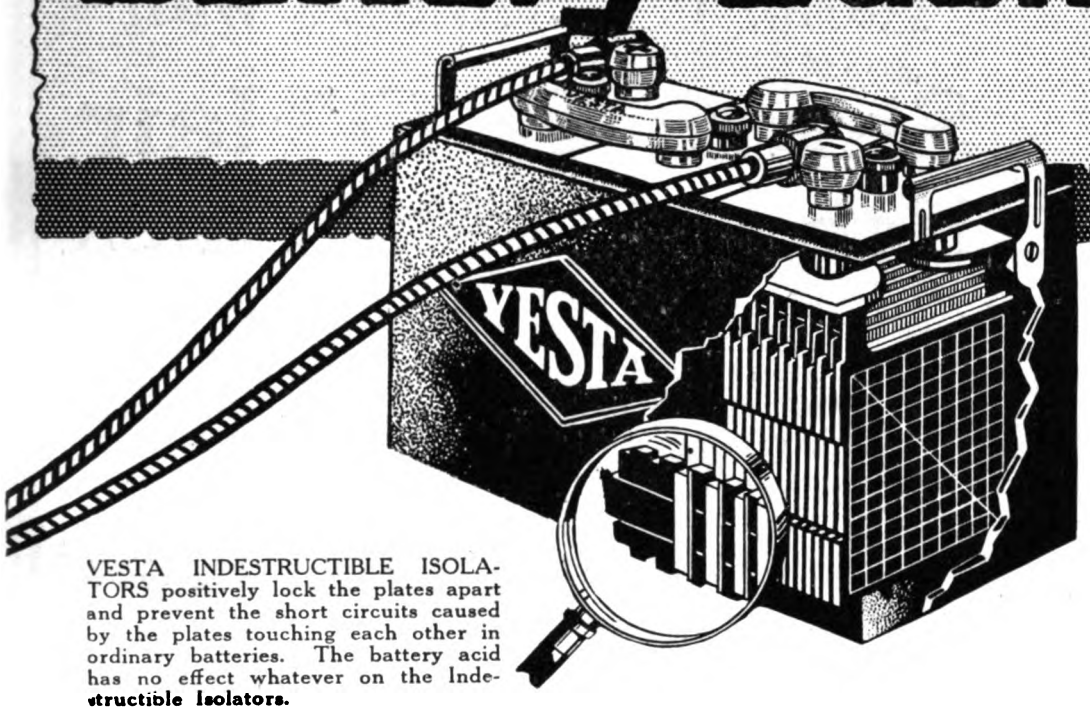
This is one reason why more and more Vesta Batteries are being sold every day. Automobile owners are learning of the exclusive improvements in the VESTA—the **Indestructible Isolators,** which lock the plates apart and prevent short circuits; the **Impregnated Wood Mats** which prevent "treeing"; the use of **Titanium** in the battery solution which gives the plates longer life and precipitates minerals and impurities.

VESTA
DOUBLE LIFE
STORAGE BATTERY

When writing advertisers please mention Motor World—It identifies you

Digitized by Google

Battery Business



VESTA INDESTRUCTIBLE ISOLATORS positively lock the plates apart and prevent the short circuits caused by the plates touching each other in ordinary batteries. The battery acid has no effect whatever on the Indestructible Isolators.

It stands to reason that these motorists when making battery replacements want this battery that gives double-life and consequent double-economy and double-satisfaction. These replacements can be **yours** with the VESTA.

It is easy to see why a VESTA Service Station connection is the logical battery connection for the dealer, just as the VESTA is the logical battery for the motorist.

Fill out and mail the coupon today for our dealers' proposition.

VESTA ACCUMULATOR COMPANY

2103 INDIANA AVENUE CHICAGO, ILLINOIS

DEALER'S COUPON

Vesta Accumulator Co., 2103 Indiana Ave., Chicago, Ill.

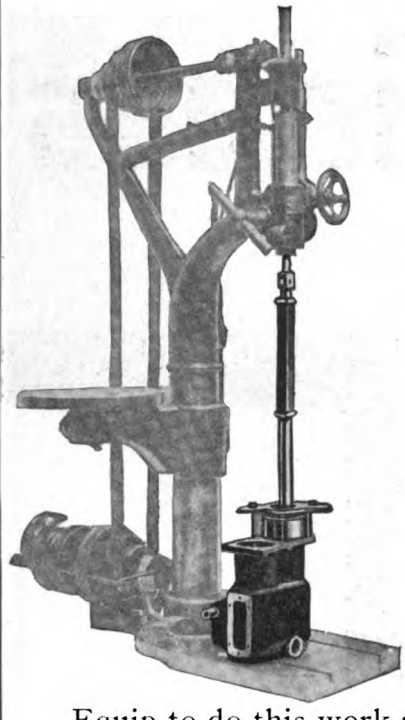
Please send information on the VESTA DOUBLE-LIFE STORAGE BATTERY and your SERVICE STATION PLAN.

Name .....

Address .....

.....

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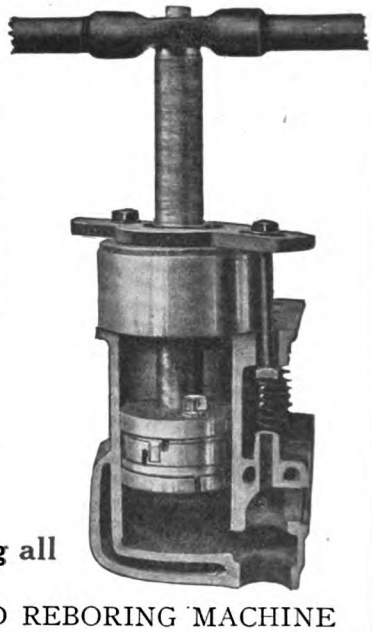
There is Big Money in Reboring Cylinders with

Storm & O'Hair Reboring Machines

War conditions are making old motors valuable.

There are more old cars in use today than ever before. More are being overhauled and rebuilt, more trucks and tractors in use. They all need reboring and rebuilding sooner or later. Hundreds of these are in your locality and need your attention now.

Equip to do this work and it is sure to come to you. Get in the game while it is yet young.



Don't deliberately send this good paying business, which is rightly yours, out to competitors; do it yourself and put the profit in your own pocket

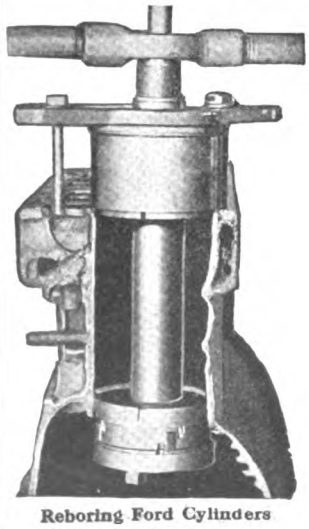
In the STORM & O'HAIR REBORING MACHINE you have a practical and highly efficient equipment with which any repair shop can handle this profitable work. Install one at once. Rebore and rebuild old machines during the dull season of the year. It will save you time and money, keep your shop busy and make extra profit for you.

Do You Handle Second Hand Cars?

If so, don't sell them at a sacrifice, but rebore and overhaul them, increase their power, take out the noise, make them run like new, and you will add wonderfully to their selling value and make a real profit.

We have a Machine Covering all Requirements

The No. 101 STORM & O'HAIR STANDARD REBORING MACHINE rebores the cylinders of all types of motors, automobiles, trucks, tractors and stationary engines. Capacity 3¾ to 4½". Attachments for smaller and larger work.



Reboring Ford Cylinders

The No. 104 S. & O. Machine for Fords

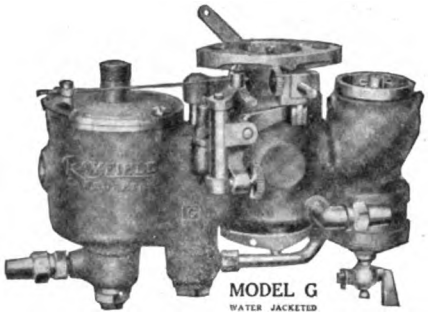
The most popular and successful Machine for Fords now on the market. While it is put especially for Ford repair shops, yet will rebore other 3¾" detachable head motors to .031 or other desirable oversizes, and is adjustable and can be made suitable for other work by simply purchasing additional parts.

The Machines are simple, speedy and reliable, and do the work thoroughly and accurately. They will increase the prestige and popularity of your shop. Regularly equipped for operating by hand but can be operated by drill press as shown.

For Sale by leading jobbers. We furnish pistons for all makes of motors. Write today for literature and prices.

Dept. A **Storm Manufacturing Co.** **Thompson, Iowa**

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RAYFIELD CARBURETOR

Proof of the Pudding

THE big closing punch in the sale of an automobile is the demonstration. That's right; isn't it? The prospect wants to *experience* what the car will do on the road.

Rayfield Carburetors are sold in the same way. The car owner tries one on his car. He tests it himself.

The Rayfield is *made to make good;* if it doesn't live up to your and our guarantee of 20% to 50% more miles per gallon of gasoline with better all-'round performance—then the man gets his money back.

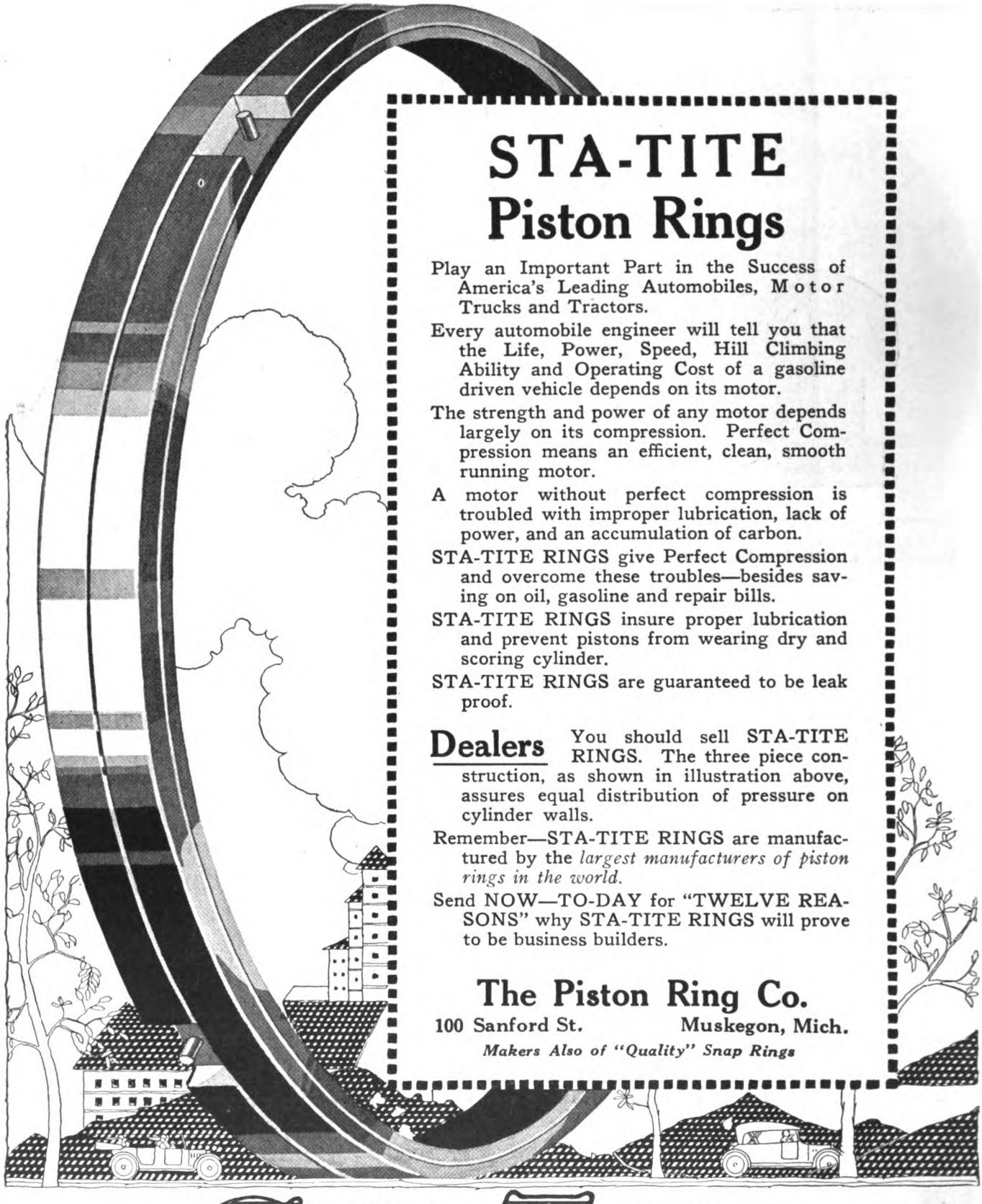
Can a manufacturer express stronger belief in his product than that? Right now is the time to consider the Rayfield—*winter*—when a carburetor demonstrates its superiority most effectively.

The Rayfield meets *any* situation in all-weather driving; it *stays* adjusted.

Write us about our special sales proposition to dealers.

Findeisen & Kropf Mfg. Co.
2101 Rockwell Street, Chicago

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STA-TITE Piston Rings

Play an Important Part in the Success of America's Leading Automobiles, Motor Trucks and Tractors.

Every automobile engineer will tell you that the Life, Power, Speed, Hill Climbing Ability and Operating Cost of a gasoline driven vehicle depends on its motor.

The strength and power of any motor depends largely on its compression. Perfect Compression means an efficient, clean, smooth running motor.

A motor without perfect compression is troubled with improper lubrication, lack of power, and an accumulation of carbon.

STA-TITE RINGS give Perfect Compression and overcome these troubles—besides saving on oil, gasoline and repair bills.

STA-TITE RINGS insure proper lubrication and prevent pistons from wearing dry and scoring cylinder.

STA-TITE RINGS are guaranteed to be leak proof.

Dealers You should sell STA-TITE RINGS. The three piece construction, as shown in illustration above, assures equal distribution of pressure on cylinder walls.

Remember—STA-TITE RINGS are manufactured by the *largest manufacturers of piston rings in the world.*

Send NOW—TO-DAY for "TWELVE REASONS" why STA-TITE RINGS will prove to be business builders.

The Piston Ring Co.

100 Sanford St. Muskegon, Mich.

Makers Also of "Quality" Snap Rings

STA-TITE PISTON RINGS

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REES JACK

DOUBLE WORM GEAR DRIVE



Crawling under axle to place jack with hands

Placing and operating jack without even reaching under car

The Safest, Cleanest and Most Powerful Auto Jack Made

A woman can handle a Rees Jack with ease, and without even soiling her hands.

It can be placed under the car by its long handle, thus obviating the necessity for reaching under the axle to place it with your hands.

You can *stand up* when operating it. It will operate with the handle at an angle to the jack, which is sometimes necessary on uneven or muddy roads.

CONVERTS FRICTION AND END THRUST INTO POWER

Being a worm-drive jack (the most efficient lifting principle known to mechanics) it lifts *steadily,* not in jerks. It cannot run out when held upside down. It cannot fall under a load.

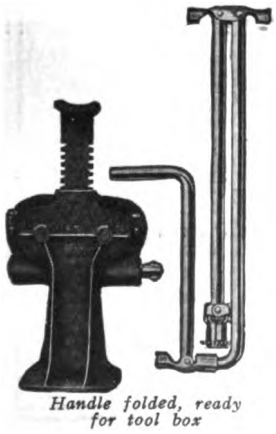
The Rees Jack is no larger nor heavier than other jacks—it fits in your tool box, handle and all.

But it is tremendously powerful. Born and developed in railroad yards, lifting freight cars, an automobile is *merely play* for it. You can lift a car with one finger on the jack handle.

ONLY FOUR WORKING PARTS

It is simple and compact in construction. Contains only 4 working parts, no springs, pawls, or ratchets. Handle is connected to jack by universal joint, and can be locked or unlocked by one twist of the fingers.

$8.00



Handle folded, ready for tool box

THE UNITED STATES JACK COMPANY NOW OWNS THE EXCLUSIVE SELLING RIGHTS FOR THE REES JACK

DEALERS

The Rees Jack sells itself. It is one of the best advertisements and attention-getters you can have in your place.

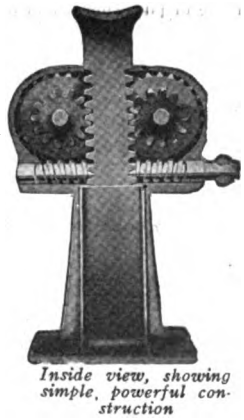
Everyone who sees it wants to try it. And one trial means a sale, if the one who tries it has any use at all for a jack. Let them try it on your office safe. It will lift it without an effort.

Write at once for extremely generous and certain business-getting proposition. Big profits, small outlay, quick sales.

UNITED STATES JACK COMPANY

EXCLUSIVE SALES AGENTS

UNION ARCADE PITTSBURG, PA.



Inside view, showing simple, powerful construction

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For Years Keystone Tubes Have Sold on Quality

Better Tubes can't be made

The Keystone Universal Tube for Fords is the only really successful universal tube that can be used in front and rear tires on Ford cars. It is made from high grade Black stock scientifically compounded to give extreme service and is reinforced on the rim side with a strip of the best quality antimony Red rubber. It is fully guaranteed to be perfect in material and workmanship.

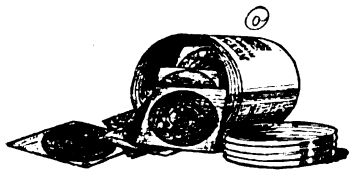
For years Keystone Tubes have been made by the roll-up Laminated System which today is being advertised by the best tube makers as the only correct system. We use a special process of our own which gives protection against tearing in any direction and lends a quality of exceptional strength and endurance.

KEYSTONE

TRADE MARK

Inner Tubes are today the choice of a great number of the better dealers who have found in them an immense factor for large profits and satisfied customers. Jobbers and Distributors can arrange for guaranteed tubes of special brand made to their order.

The Keystone—No Cement



Patches are the only patches of their kind on the market. They are pure Para rubber—one side is left uncured and adheres to the tube. A perfect patch—put up in cans. Patented and guaranteed.

The Keystone Leak Nit Rubber and Fabric Patch is put up in screw top cans containing a sheet 5" x 18" or 4" x 12", a tube of patching cement, emery cloth and full directions for using, made of pure rubber and high grade duck—a patented process, absolutely guaranteed against separation of materials. Properly applied, will outlast the tube. Can be used on splits up to 17" in length.

See our space at the New York Show—D-6—Grand Central Palace.

KEYSTONE RUBBER MFG. CO.
Erie Penna.

One of the oldest tube manufacturers in America

Branches: New York Chicago

Dealers—Get in touch with Keystone.

Write today for details and proposition.

YES

It is quite a question just where to put your finger on the Machine Shop that can handle the job—*quickly*.

BUT

our CONTRACT WORK DEPARTMENT will give the answer.

Refer to page 390 this week's Number.

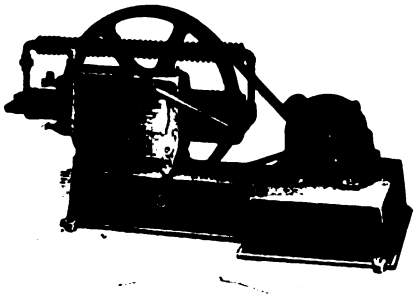
Contract Work Dept.
MOTOR WORLD

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The Mechanical Advantages of

GLOBE AIR COMPRESSORS

Make Them Safe—and Pay



Type B Two-Stage Air Compressor.
A Complete Motor Drive Unit.

GLOBE Air Compressors make friends. They reduce to a minimum the cost of maintaining your air service, and multiply your opportunity to make back that cost—with profits—from sales in other departments, that come "through the air."

GLOBE Two-Stage Compressors combine every modern improvement of worth, besides many exclusive features. Made for all purposes, but especially for use in Air Stations for filling automobile tires.

Always dependable, they keep the pressure right.

The New Globe Unloader Saves Additional Money, Time and Trouble

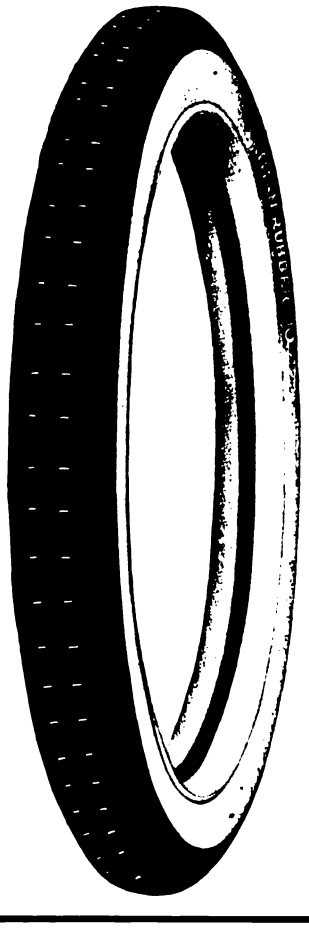
Permits the compressor to start without any load. Prevents throwing or burning of belts when starting. With motor drive outfits eliminates the danger of burning motor, as the motor comes up to speed without load. By operation of the unloader, the oil trap is automatically drained every time the compressor stops—a feature in itself worth more than the cost of the unloader. Can be attached to Type B GLOBE Compressor already in use. No extra charge with motor drive equipments when furnished complete with motor.

Write for free illustrated literature showing the exact equipment it will pay you to install.



GLOBE MANUFACTURING COMPANY

Battle Creek Dept. D Michigan



INCREASE YOUR PROFITS

Buy TITAN TIRES

100% Tire Value

At our exceptionally low **Factory direct to Dealer Prices.** We GUARANTEE TITAN TIRES to be absolutely FIRST QUALITY. TITAN TIRES are STRONG and SPEEDY and DEPENDABLE on the Road. Built with strong side walls, tough wear-resisting tread, equal to any emergency. The Non-Skid tread affords additional mileage and has sufficient vacuum to prevent skidding.

At the prices quoted there is not a sufficient margin to offer a mileage guarantee. It adds to the cost of the tire but doesn't make it wear any longer. TITAN users don't need it. TITAN TIRES are priced on the basis of TIRE VALUE only. They always satisfy. You buy them for less, sell them cheaper and make bigger profits.

TITAN gray LAMINATED inner tubes are built up by hand from the finest Rubber Stock obtainable, toughened and cured by a special formula. These tubes are wonderfully flexible yet extremely strong. They are unqualifiedly GUARANTEED against defect or leakage, and will give you the service of well advertised Brands at double the cost of TITAN'S.

Dealer's Prices Effective Dec. 1, 1917

Size	Titan Non-Skid	Grey Tubes
30x3	$ 7.52	$1.90
30x3½	9.82	2.15
31x3½	10.27	2.20
32x3½	11.55	2.25
34x3½	13.32	2.35
31x4	14.72	2.95
32x4	15.22	3.05
33x4	15.82	3.10
34x4	16.32	3.20
35x4	18.32	3.30
36x4	18.62	3.35
34x4½	21.72	4.00
35x4½	22.62	4.10
36x4½	23.72	4.15
37x4½	26.57	4.25
36x5	29.32	4.95
37x5	27.57	5.05

Prices quoted are 50% off Car Owner's Price List. Tube Prices 40% off.

Terms F.O.B. Chicago

25% deposit with order, balance Express C.O.D. or sight draft attached to Bill of Lading. 2% discount when you prepay full amount. Orders for sample casings must be accompanied by prepayment.

DEALERS—Territory for TITAN TIRES AND TITAN TUBES is valuable, because it means big profits to the DEALER and a rapidly growing business.

TITAN RUBBER CO.,

1414 MICHIGAN AVE. CHICAGO

When writing advertisers please mention Motor World—It identifies you

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THE WELL KNOWN LINE OF

Speer Automobile Brushes

Will be Exhibited at the

Eighteenth Annual National Automobile Show

Grand Central Palace, New York City

January 5 to 12, 1918

Section D-90, Fourth Floor

A cordial invitation is extended to each and every person connected with the Automobile Industry, to call and inspect the line.

SPEER CARBON COMPANY, ST. MARYS, PA.

Every User of Air Pumps Owes It to Himself to Investigate Union Pumps Before He Buys

Union Air Pumps are mechanically perfect and are built in every part of the best and most scientifically chosen materials.

And then—Union Pumps have new patented features of economy and efficiency which are tremendously important—such as—

The Automatic Control by which the pump may be adjusted to automatically start and stop at the pressure points.

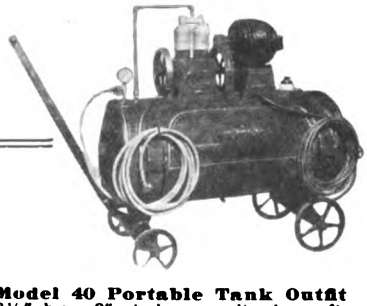
The fact that the drive from the motor is by gear instead of belting, thus eliminating one of the costliest upkeep points.

The fact that the gear pinion is made of fabric, which is more durable than steel and almost entirely noiseless.

The fact that Union Pumps have a flywheel opposite the gear wheel which insures perfect balance in operation and a saving in wear on all bearings.

UNION PUMPS

Without fail—write for descriptive literature—you'll be impressed, even if you don't buy



Model 40 Portable Tank Outfit
2¼" bore, 2" stroke, capacity 4 cu. ft. free air per minute. Twin-cylinder Compressor. Compressor speed 450 R.P.M. Lubrication, splash system. Equipment—½ H.P. motor, 18" x 42" tank (150 lbs. working pressure), with pressure gauge, 2 globe valves and switch, 20 ft. electric cord with switch plug and 20 ft. rubber hose and valve connection.

Price, $240.
With Automatic Control, extra, $30.00



Model 30 Stationary Outfit

Bore, stroke, capacity, compressor, speed of compressor and lubrication, same as Model 40. Equipment, ½ H.P. motor, automatic control, 14" x 36" tank (150 lbs. working pressure) with pressure gauge and safety valve, 25 ft. heavy armored hose with automatic air valve.

Price, $200.00.

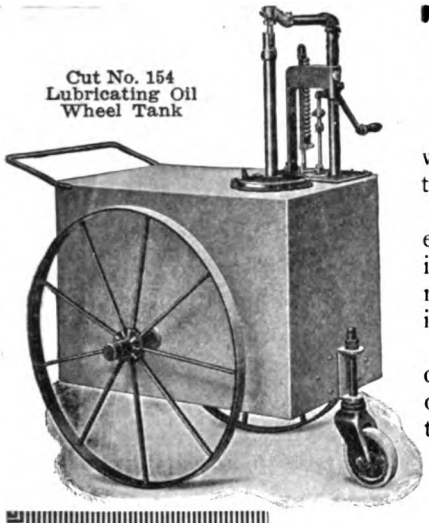


Model 20 Portable Outfit
Bore, stroke, capacity, compressor, speed of compressor and lubricating system same as Model 40. Equipment, ½ H.P. motor, 20 ft. water and oil proof two-way connecting cord, 17 ft. special grade rubber hose with pressure gauge and thumb lock valve connection.

Price, $150.00.
One cylinder model, $100.00.

UNION ENGINE & MFG. CO., BUTLER, PA.

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Cut No. 154
Lubricating Oil
Wheel Tank

The Pump that Convinces

The Garage, whether it be large or small, if equipped with a Bowser Gasoline Pump and Lubricating Oil Outfit, is bound to attract attention and receive a generous trade.

For the simple reason that the car owner has been convinced by former experience that the "Bowser" insures him against loss from spilling, short measure, and poor quality gasoline, he knows he will receive A-No. 1 service, and gasoline with "gallop" and "go" in it galore, due to the "Bowser" method of storing and handling.

A satisfied customer will not only return, but he will cause others to return with him, while a dissatisfied customer will not only stay away himself, but grumble until he has caused others to leave. Play safe and install

BOWSER
ESTABLISHED 1885

Lubricating Oil and Gasoline Storage Outfits

Outfits are made for any capacity. Tanks for gasoline are buried underground, which eliminate fire hazard. Proof against loss from theft, fire, leakage, spillage, evaporation and deterioration; saves time and labor.

Make a permanent customer out of the new car owner—and they will be numerous, after the Show.

Write to-day for interesting booklet—no obligation.

S. F. BOWSER & CO., INC.

Sales offices in all centers

Fort Wayne, Indiana, U. S. A.

Representatives Everywhere

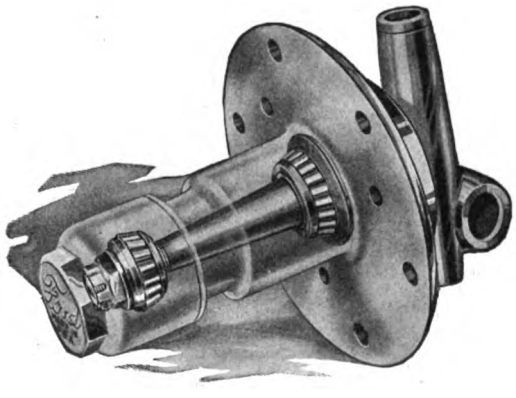


Cut No. 241
Red Sentry

The chances are 4 to 1 that the bearings in your Ford front axle won't last 12 months. Why not anticipate the troubles bound to come through poor alignment and install Wright Taper Roller Bearings to prevent these troubles?

These unique roller bearings are identical in design with those used on the highest grade passenger and commercial vehicles. They'll outlast your Ford and will absolutely prevent misalignment of the front wheels and excessive tire wear. The use of demountable rims crushes the present Ford bearing. Wright Taper Roller bearings will carry this additional load.
There's no difficulty in installing them as they fit the Ford without any changes whatever.

Price, $10.00 per set
(4 Bearings)
In Canada, $15.00



Wright Taper Roller Bearings Installed on Ford Front Spindle.

Dealers write Dept. M for proposition and details.

NATIONAL BEARINGS SERVICE CO.

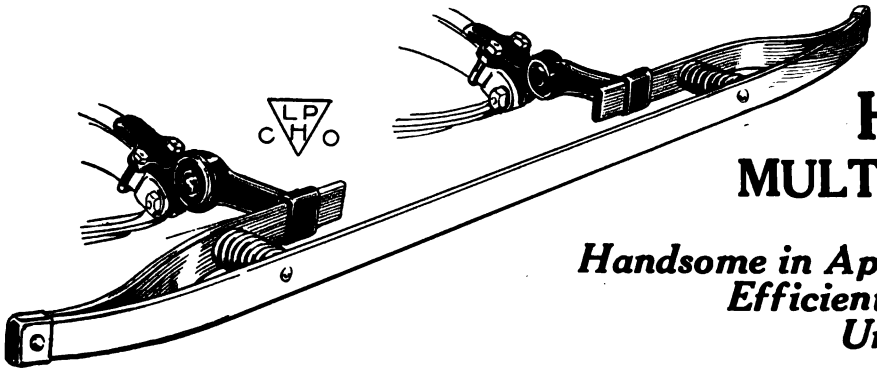
WRIGHT TAPER ROLLER BEARINGS

Replacements for all Standard types of Bearings

725 N. Broad St., Philadelphia **New York Office, 1482 Broadway**

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The Triumph of Bumper Construction



The New HALLADAY MULTIPLE SPRING BAR

Handsome in Appearance
Efficient in Action
Universal in Attachment

Supplied with special fittings as shown or with any fitting of the HALLADAY Line

The shock resisting qualities are derived from a combination of three steel spring bars and two heavy spiral spring buffers. The spring ends are joined by a hinge connection which eliminates breakage at this point.

Experienced dealers and car owners will quickly appreciate the enormous strength and efficiency of this bumper and the wise ones will get busy.

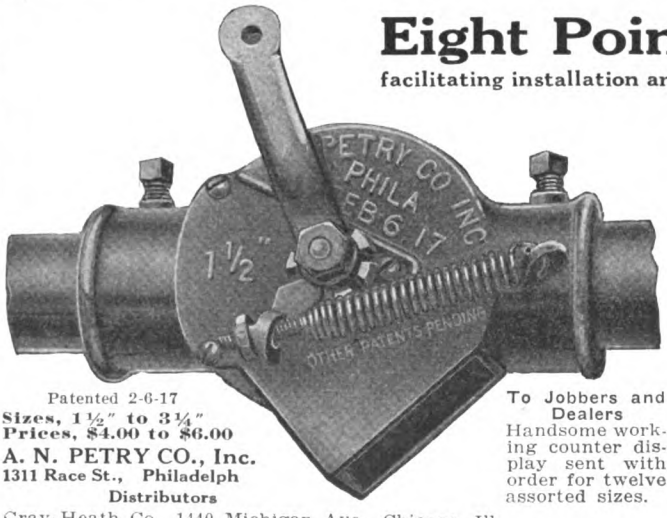
DISTRIBUTED THROUGH REGULAR CHANNELS

L. P. HALLADAY COMPANY, Streator, Illinois

DISTRIBUTORS: Asch & Co., 16-24 W. 61st Street, New York City; E. L. Thompson Co., 817 Boylston Street, Boston, Mass.; Gray-Heath Co., 1440 Michigan Avenue, Chicago, Illinois; Sanford Brothers, Chattanooga, Tenn., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.

Eight Points of Adjustment

facilitating installation and eliminating in most cases the use of pulleys

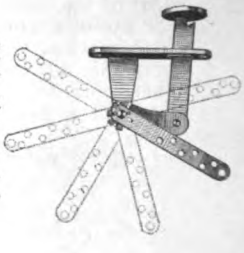


Patented 2-6-17
Sizes, 1½" to 3¼"
Prices, $4.00 to $6.00
A. N. PETRY CO., Inc.
1311 Race St., Philadelph
Distributors
Gray-Heath Co., 1440 Michigan Ave., Chicago, Ill.
Hughson & Merton, Inc., 77 O'Farrell St., San Francisco, Cal., 421 Oregon Bldg., Portland, Ore.

To Jobbers and Dealers
Handsome working counter display sent with order for twelve assorted sizes.

Every motorist is quick to appreciate this exclusive, patented feature of the Petry Cut-Out.
Yet it's only one of the many constructional advantages of a cut-out scientifically correct in every detail.
The first device of its kind to give permanent satisfaction. Expels the exhaust gases through a full-size megaphone-shaped vent, which greatly augments sound and facilitates tuning up of motor. Has adjustable lever, positive cut-off, non-fluttering valve, and is absolutely noise-proof when closed. Spring cannot anneal from the heat. Makes a gas-tight joint of permanent rigidity without strain on exhaust pipe. Easy to install and easy to operate. A size perfectly suited to every car.

The Petry Universal Pedal
Pat. App. for



Six different positions. Adjustable to pull or push; for any use for which a pedal is required. Muffler cut-outs; any style, kind or size. Accelerator. Exhaust whistle or horn. Heater valve.
The only pedal on the market that will meet all requirements.
Made of high grade steel with special processed **gun-barrel finish**, not plated.
Price 75 cents each.

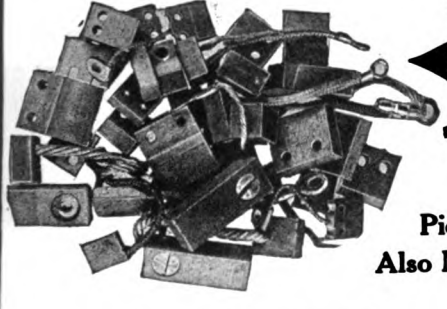
PETRY CUT OUT

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HOW DO YOU CARRY

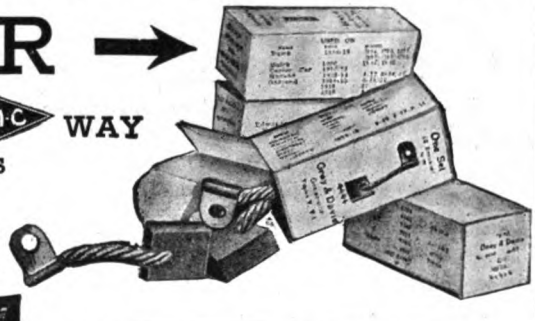
IGNITION PARTS AND BRUSHES



THIS LOOSE WAY

OR

THE O-M-C WAY



IN INDIVIDUAL CONTAINERS SHOWING

Picture and description of part
Also Names, Years, Models of Cars

QUALITY

Guaranteed identical with ORIGINAL automobile equipment.

SERVICE

All orders shipped day received.

SEE US AT

THE SHOW

New York Fourth Floor Booth D127.

Chicago - Coliseum - Booth 20B.



24" high, 24" wide, 9" deep at base.

GET ONE OF THESE BEAUTIFUL

STOCK and DISPLAY

CABINETS

Without Charge.

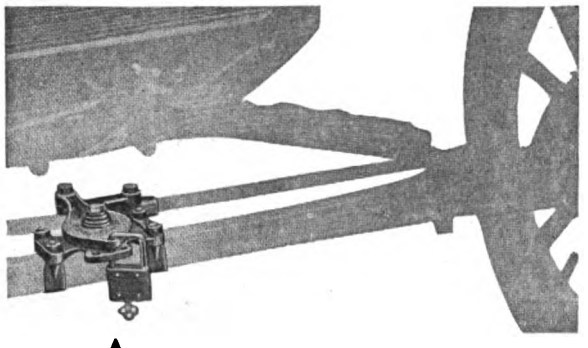
WRITE US FOR IT

And also for

OUR LATEST BRUSH GUIDE SHOWING PROPER BRUSH FOR EACH CAR.

Otter Manufacturing Co. Inc., Formerly **Motor Car Spring Co. 243 W. 17th St., New York**

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Why HELCO Dealers Prosper

Self preservation—safety—is the dominant human instinct. How many motorists would buy a car that was notoriously dangerous to ride in?

Yet, with all that has been achieved in the mechanical construction of motor cars, accidents happen every day. Is it any wonder, then, that HELCO dealers enjoy a flourishing business—when they can offer their customers a device which positively eliminates the cause of 97 per cent of accidents—a device which is priced so low that any motorist can afford it?

Helco No. 2 STEERING CONTROL AND LOCKING UNIT

The HELCO No. 2 is a simple appliance that holds the front wheels on a straight course, without offering the slightest increased resistance to steering.

It absorbs all road shocks caused by car tracks, faulty pavements, ruts, sand, snow, mud, etc. Without the HELCO these shocks are transmitted to the steering wheel. Naturally a saving in fuel follows, as a result of more efficient transmission of power—and furthermore, a steadier tread is assured, reducing tire wear and increasing mileage. And these are in addition to the *big* factor of *safety*.

The HELCO No. 2 is built of solid steel castings, tested to 45,000 pounds. It is practically indestructible. Anybody can install it in ten minutes.

Price

East of the Mississippi, With Lock, $5.00.
West of the Mississipi, With Lock, $6.00.
$5.50.
$6.50.

Prevents Theft

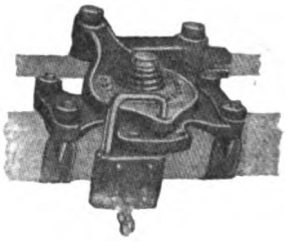
A high grade padlock enables the owner to lock his steering gear in one of three positions, making theft impossible.

Guaranteed to Save Gas and Tires

We have an interesting money-back guarantee that *insures* the purchaser increased tire and fuel mileage, and better road holding at high speed.

Splendid Dealer Proposition

The HELCO NO. 2 is a quick seller, and is gaining rapidly in popularity. Over 4,000 are now in use. You will find it a splendid paying proposition, with a generous profit on every sale. Send for literature, discounts and complete details.



HOMESTEAD ENGINEERING LABORATORIES CO., HOMESTEAD, PA.



How Would You Like to Sell a Fleet Like This?

SELLERS of motor trucks—your biggest year is looming up ahead! Never has the outlook been so full of possibilities.

The Government, the railroads, and the express companies join in warning the public to prepare for car shortages and freight congestion in the months to come. Four of the largest express companies, in a joint pamphlet of warning and advice, say, *"It is also requested that freight service and motor trucks be used for the short haul traffic in and around congested districts."*

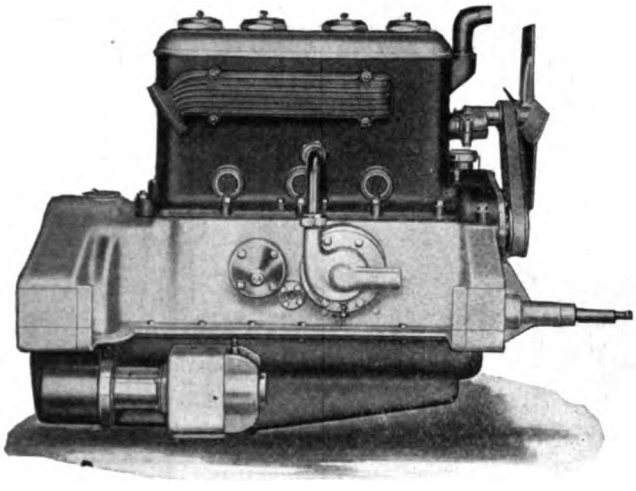
INTERNATIONAL MOTOR TRUCKS are filling the breach on every hand. Far-sighted dealers are placing Internationals in increasing numbers with far-sighted business men. One large corporation is already using 600 Internationals. Dealers will find sales coming still faster as the situation becomes more and more serious.

INTERNATIONAL MOTOR TRUCKS meet the needs of any and every firm with transportation problems to solve, in 1500, 2000, 3000 and 4000-pound capacity sizes, at prices ranging from $1450 to $2550 for the chassis (f.o.b. factory) with suitable bodies for every business. You know International standards and reputation—but have you seen the new 2-ton Model G?

We offer this line of International Motor Trucks as a most profitable dealer opportunity. The time is ripe for easy selling. Your territory may still be open. If it is, get an International contract. Write today for full information.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
(INCORPORATED)
155 HARVESTER BUILDING CHICAGO U S A

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THE AMERICAN SLEEVE-VALVE MOTOR

The Motor Masterpiece

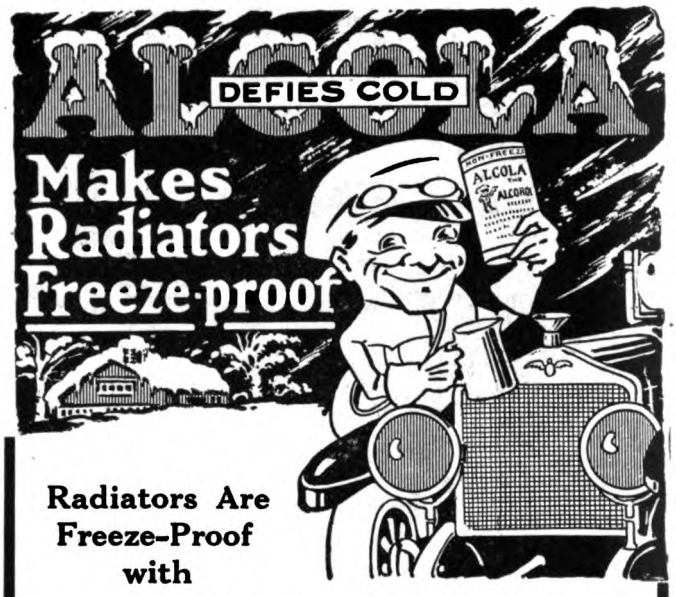
will be exhibited at the New York and Chicago Shows.

Spaces D88-89, Upstairs,
Grand Central Palace,
Spaces 11 and 12, Gallery,
First Regiment Armory

A simplified sleeve-valve type of high efficiency motor for automobiles, trucks, tractors, motor boats and aircraft, representing one of the most important developments in the history of the motor industry. Don't fail to visit this exhibit.

Descriptive booklet upon request.

American Sleeve-Valve Motor Co.
Widener Building **Philadelphia, Pa.**



Radiators Are Freeze-Proof with

ALCOLA DEFIES COLD

under lowest temperatures

One package keeps radiators from freezing at 20 degrees below zero.

Use your car all Winter. Get a full year's service now that the bugbear of freezing water systems has been removed by ALCOLA.

The saving in radiator repair bills to the owners of light delivery cars and trucks is many times the cost of ALCOLA.

Your car can stand in the coldest temperatures, if you dissolve ALCOLA in the water. Instantly soluble in cold water.

Water Freezes **Alcohol Evaporates**

ALCOLA

Neither Freezes nor Evaporates

ALCOLA is *chemically neutral.* It will not rust or corrode. One treatment is enough for entire Winter. ALCOLA raises the boiling point of your cooling system to 250 degrees—whereas alcohol boils at 131 degrees and water at 212 degrees—ALCOLA boils at 250 degrees.

Price, in the U. S., $2.00
" in Canada, 2.50

DEALERS: Your winter sales can be greatly increased by instantly stocking in with ALCOLA. There is an enormous demand for this product. Put in a moderate stock at once, to take care of immediate orders.



We have no fear but that you will come back with constant repeat orders. A big, liberal proposition should enlist your hearty co-operation.

Alcemo Mfg. Co.
206 Bridge Street
Newark, N. J.

MAIL THIS TODAY
ALCEMO MFG. CO., 206 Bridge St., Newark, N. J.
Ship me 1 dozen ALCOLA at dealer's discount.
Name .....
Address .....

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25¢ each

CHAINS and IGNITION SYSTEMS

Ignition systems are like chains whose four links are—(1) The source of current
(2) The wires
(3) The connections
(4) The spark plugs.

Three of those links are strong. But the **fourth** —the old-style connection—is **weak.** And no chain is stronger than its weakest link.

Get **full** efficiency out of your ignition system by equipping with the

HANDY TERMINAL

Grips Like a Vise

Instead of working loose—instead of impeding the flow of current to your spark plugs—vibration and jar make the jaws of the HANDY set firmer. Nothing can work between those jaws, either. The electrical contact cannot be broken. You get a vise-like action that means a hot spark.

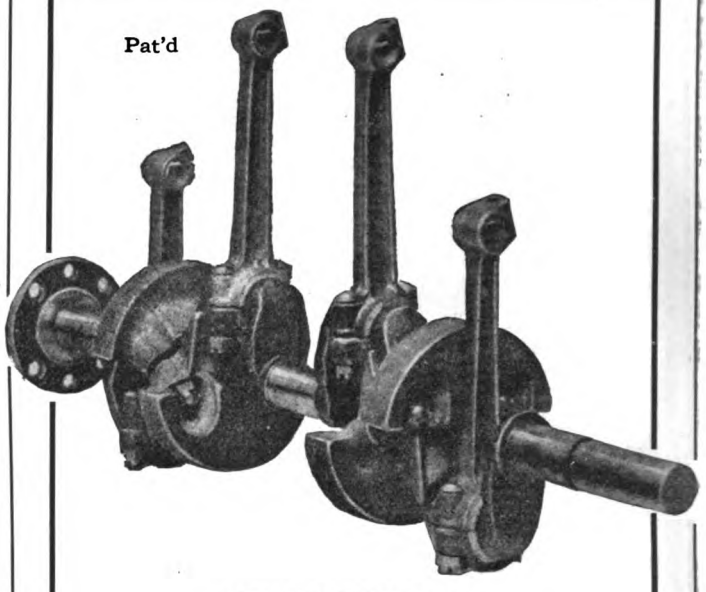
The jaws of the HANDY are threaded on the inside and engage the threaded center bolt of the plug. Pulling up on the ring with the first and second fingers (see illustration) compresses the spring—the jaws are released and the plug is freed. Reversing the action clamps the jaws again. No nuts to tighten or loosen, nor fish out of the drip pan. No tools required.

The magneto cable is gripped permanently by a ferrule—an integral part of the terminal. The stripped wire is held by a brass clip. The unsoldered connection cannot work loose.

The HANDY is necessary to trouble-proof ignition. It gets the maximum out of your ignition system. Three sizes to fit **every** make of plug.

DEALERS: An accessory without competition. The accessory that is moderately priced, nationally advertised, a real convenience, a good profit maker, and a *winter seller.* If your jobber can't supply you, send us his name.

THE FRANCIS-RAND CO.
Manufacturers of
HANDY PRODUCTS
406 Erie Building, CLEVELAND, OHIO, U.S.A.



DUNN'S
Counterbalances Turn Ford Motors Loose

Once installed on any Ford motor they give the smooth, continuous power stroke so familiar to the drivers of miltiple-cylinder cars. They take the brakes off the crankshaft, and turn the motor loose.

There is just one way to overcome the natural vibration and friction that keeps Ford motors from doing their best. COUNTERBALANCING THE CRANKSHAFT IS THE ONLY SOLUTION.

DUNN'S Counterbalances are the greatest—the most needed—accessory ever brought out for use on Ford cars. No other accessory has ever approached their importance—and the sales have been in proportion to their value.

For Racing, Touring, Delivery Cars—They Sell

DUNN'S Counterbalances are as essential on delivery cars and runabouts as they are on racers. They add enough to the life of the motor to *pay for themselves* in short order. They insure more speed, more power, greater economy. They are essential on every Ford.

Simple and easy to install. A wrench is the only tool. No grinding, drilling or machining.

SETS ARE NOW READY for every dealer and Ford owner. In stock they mean big sales and extra business for dealers. On Ford cars they guarantee satisfaction to owners.

Price per set, only $12.50.

Write for free illustrated literature and complete details.

The Dunn Counterbalance Company
115 North 15th St. Clarinda, Iowa
The Dunn Counterbalance Sales Company of California
1220 San Pedro St., Los Angeles, California

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Simplicity Wheel Outfit For Ford Cars

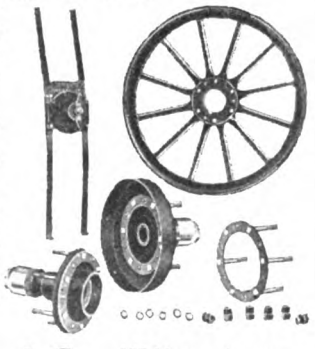
EVERY Ford owner should have a Simplicity Demountable Wheel. It does away with the fear of tire trouble and enables anyone to change wheels in *4 minutes or less.* The Simplicity Wheel Outfit sells for only *$20.00,* installed on your car. This includes the extra wheel which is interchangeable with any wheel on the Ford car. It also includes the bolts, nuts, brackets for attaching spare wheel to the car and everything else that is necessary to make this outfit complete.

Send us your order at once or write for the circular which describes and gives the complete details of this wonderful wheel outfit. The Simplicity Demountable Wheel is better than any demountable rim on the market. It should be on every Ford car.

$20.00 for this complete outfit.

Dealers Wanted Everywhere

The Simplicity Demountable Wheel is proving itself a big seller everywhere. Every demonstration means a sale and each sale brings another, because every owner will advertise it to his friends and send them to you for one of the outfits.



Write For Dealer's Proposition at Once

Do not pass up this opportunity, but write at once for our dealer's proposition. Let us give you the complete details. Let us tell you why this wheel is so desirable, let us tell you why every Ford owner is a good prospective customer for one of these wheels.

Simplicity Wheel Co. 137 Monroe Avenue Grand Rapids, Mich.

The Most Remarkable Exhibit At the Show

Inner tubes with 6-inch cuts in them, mended by a few stitches with ordinary needle and thread, made to sustain full air pressure —indefinitely—by

WONDER SEAL

RESERVATION D-205 FOURTH FLOOR

Don't miss this unusual exhibit. If you have any interest whatever in automobile tires it will vitally interest you.

Used and Endorsed by New York State Automobile Bureau

The New York State Automobile Bureau has been using this successful method of tire insurance for some time. It has their highest endorsement, as well as that of other institutions, and tire dealers.

Makes tires last longer, is a proven remedy for punctures, and keeps the required pressure in your tires **all the time.**

For Full Particulars Write to or Call on the

WONDER SEAL COMPANY

1789 Broadway, New York

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An equitable adjustment is the second best thing a tire manufacturer can make. The first best thing is to make a tire like the Kelly-Springfield.



Kelly-Springfield Tire Co.
Executive Offices
Seventh Ave. at 57th St., New York.
General Sales Department
1900 Euclid Ave., Cleveland, O.



Have you received a copy ?

Our catalog contains more than five hundred staple repair items, such as Magneto Repair Parts, Platinum Contact Screws, Breaker Arms, Brushes, Distributor Parts and Coil Parts, also Platinum Contacts for Magneto Repair Work and Tungsten Contacts for Distributors and Coils. These items are purchased by every car owner and you should be able to supply them.

There are also listings and illustrations on Starter and Generator Brushes, giving you the name of the car, year, model and brushes to be supplied. This is very valuable data which you should have on record.

This catalog also gives you information as to what systems are used on various makes of cars, so as to enable you to intelligently serve your customer's needs. It will help you to build up a more permanent business.

We furnish a special "CASH REGISTER OF CONTACT PARTS" free with an assortment of parts.

This is a most complete and comprehensive catalog published on Repair Parts and Contacts.

Our JOBBERS can serve you. In buying request "NIEHOFF REPAIR PARTS." THEY ARE GUARANTEED.

Paul G. Niehoff & Company, Inc.
Clark Street at Kinzie Chicago, Illinois

TRADE MARK AND NAME REGISTERED BY PAUL G. NIEHOFF & CO. INC. CHICAGO

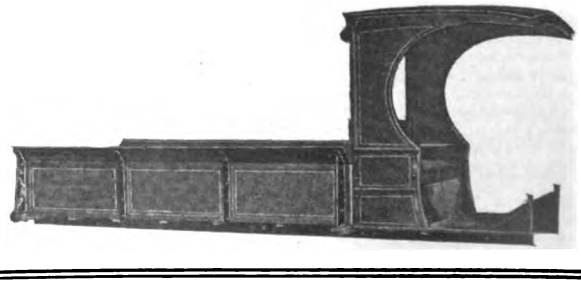
McKAY BODIES

HIGHEST quality commercial bodies. All types, all sizes. Mechanically perfect, beautifully finished. Vehisote paneling.

Our line includes a body suitable for every need—from Jitneys to Juggernauts.

Write for complete catalog.

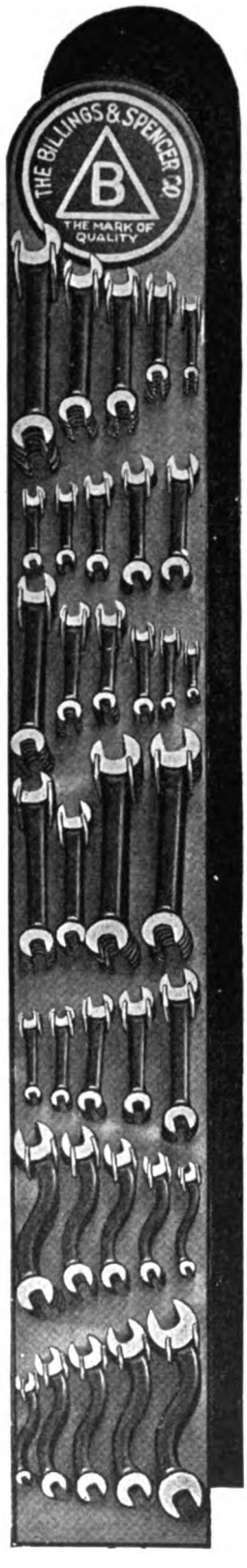
McKay Carriage Co.
Grove City, Pa.



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TRADE MARK

6000 Strong and Still Going



The Billings & Spencer Wrench Display Board has been taken up by hardware dealers, garages, and motor accessory stores in all parts of the country because it has proved its value in sales and the greater convenience in making them.

Results count and the Billings & Spencer Wrench Boards bring results. The moment you display one in your store the sale of wrenches will begin to jump.

This has been proved. This has been clearly demonstrated in more than 6000 stores throughout the country.

The majority of tool users are always ready and willing to purchase triangle trademarked tools, but they are much more ready if they see them attractively and conveniently displayed before their eyes.

Furthermore, every wrench on this board, like all triangle trademarked tools, is unconditionally guaranteed.

Write for full particulars.

Catalog on Request

34th Edition

THE BILLINGS & SPENCER CO.
HARTFORD, CONN. U.S.A.

SAVE ONE THIRD
OF
Your Gasoline Cost
and Start Your Car Easily on the Coldest Day

This new invention of the Hot Pin Manifold actually increases the mileage of each gallon of gasoline from 40% to 60% according to the present efficiency of your motor. The average is a saving of about one-third of the gasoline bills.

We have been making kerosene carburetors for five years and this invention is the result of our experiments and the developments of our kerosene carburetor, as gasoline today contains a large percentage of kerosene.

This Hot Pin Manifold simply gives you the same sort of volatile gas from present grades of gasoline that you formerly got from 76° test gasoline.

Motor Troubles today are more often due to the condensation of kerosene in the cylinders than to any other cause. The kerosene washes down past the piston rings, ruining the lubricating oil and causing undue wear of bearings, pistons and cylinders.

HOT-PIN MANIFOLD

cures these troubles by converting every particle of fuel into good explosive gas before it enters the cylinders, and by using the fuel that is now wasted saves one-third the expense.

Immediate Delivery for Fords

We are prepared to ship immediately all orders for Hot Pin Manifolds for Ford cars and within a very few weeks for Continental Truck motors, Cadillac and Maxwell, and rapidly thereafter all the leading makes of cars of large production.

A Money Back Guarantee

goes with every Hot Pin Manifold. Any purchaser that for any reason does not want it can return it at any time within 30 days and his money will be cheerfully returned.

Exclusive Territory

is now being allotted to dealers. Where we are not represented we want the liveliest man in each locality, and he will be given the exclusive sale on an extremely liberal basis. Where we have no dealer we will ship direct to users on receipt of the regular price, which is..... **$16.50** including the best primer you have ever seen, which would retail alone for $6.00.

Dealers Act Quickly

Order a sample on your letterhead and it will be promptly shipped C. O. D. at the wholesale price, and you will find you have the biggest money maker you have ever known and a particularly good WINTER SELLER.

K. B. C. Company

Dept. C

2015 Michigan Avenue, Chicago

Makers of K. B. C. Kerosene Carburetor

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Pressurite Air Gauges

Bring in the PROFITS



Here is a brand new Gauge—Tire Tester and Power Pump Gauges combined.

It fully meets the requirements of any car equipped with a power or hand Pump and can be used to entire advantage in ordinary Pump stations.

Built to the regular Pressurite design, it is absolutely reliable.

Attach this Gauge to the end of the air hose and it tells not only how much pressure there is in the Tire to begin with, but shows it gradually mounting until there is exactly enough.

Dealers who have seen this Pressurite are enthusiastic.

The price is $1.25.

The Improved Oiler



This Spring Oiler is shown for the first time at the New York Show. It is bound to make a big hit.

A thoroughly efficient lubricator—yet it does not mar the appearance of the Springs. There are no exposed bolts or screws. It fits the Spring perfectly, laying close and flat on top and sides. It will not gather mud. It has closed Oil holes. The price is 30c. each.

The Improved Oiler is made to fit any car. Dealers—send for our data sheet giving size of Spring Oilers for all makes of cars. It will help you sell Oilers.

See our exhibit at the New York Show, space D-18, Fourth Floor, Grand Central Palace, and at the Chicago Show, space 11-C, Coliseum Basement.

IMPROVED GAUGE MFG. CO.
SYRACUSE NEW YORK

ROBERTS'

Splendola

The New Body Finish



—And a Complete Line of Other Seasonable Products

"1000% Better Than the Next Best," Says One Jobber

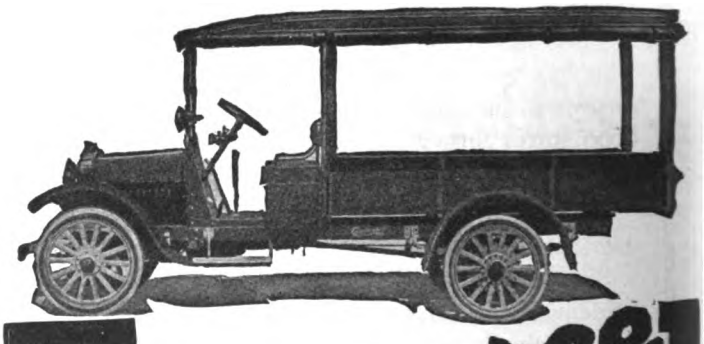
SPLENDOLA is a body finish that never fades. Has the staying qualities of paint or varnish. Not a polish—not in competition with one. Sells fast wherever introduced because it gives results that last.

All SPLENDOLA Products sell—backed by an advertising campaign that makes representatives succeed.

Dealers, Jobbers, District and State Representatives write for details. Immediate action essential.

Inquiries in your territory referred to you.

C. F. ROBERTS CO., Inc.
DETROIT MICHIGAN



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGAN

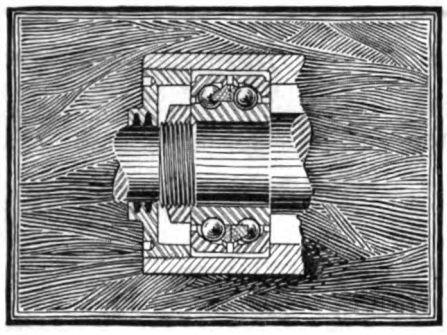
W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

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District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available about Jan. 1. Established business with jobbers and garages awaits a few high grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.



Here is economy—added efficiency too. Compare these installations and understand why the New Departure Double Row Ball Bearing has revolutionized ball bearing practice.

NEW DEPARTURE BALL BEARINGS

Compare the cost of bearings. The Double Row is obviously less expensive than the other three bearings.

Compare the cost of housings. The thrust washers must have spherical seats while the Single Row must be carefully fitted so as to "float." The Double Row housing need only be machined as for a conventional Single Row.

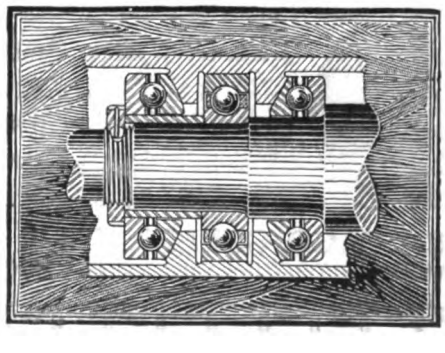
Compare the space occupied; less than half for the Double Row, an important consideration in many designs.

Compare the capacity. The Double Row resists an equal amount of thrust and from ⅓ to ½ more radial load.

Compare the adjustment. The Double Row is always in correct adjustment while it is difficult to maintain a correct adjustment and alignment with three bearing units.

Compare the action. You have true rolling motion at all times in the Double Row. Thrust washers are admittedly limited to low speed ranges.

THE NEW DEPARTURE MFG. CO.
BRISTOL, CONN.





SAVES ALCOHOL

by condensing the alcohol vapors unnecessarily wasted and returns the alcohol to the radiator to be used over and over again.

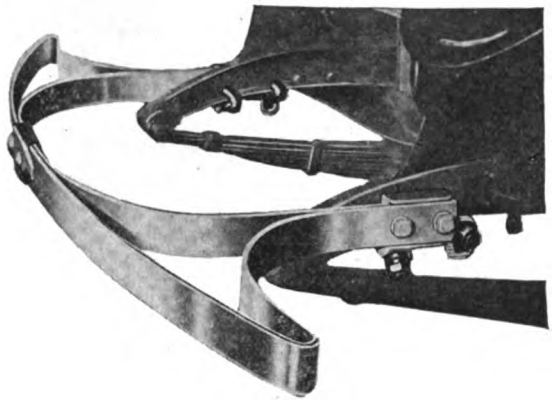
It saves you gasoline—universally needed and soaring in price—money, time and worry, plus the inconvenience and cost of repairing a frozen radiator. It eliminates the danger of heated motors, burned bearings, gaskets, and scored cylinders. It allows the operation of the car at a more efficient temperature. No water cool system is complete without a Burke Condenser.

When ordering kindly give name of nearest dealer. Send for Booklet

Little Giant Model for smaller cars.$ 5.00
Standard Model for larger cars.... 10.00

AUTOMOBILE DEVICES COMPANY
1619-21 Sansom Street, Philadelphia, Pa.
Agents Wanted—U. S. and Canada.

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IF THE CAR IS WORTH COLLISION PROTECTION, IT IS WORTH THE BEST

The U. S. E. Spring Collision Buffer is multiplied in strength at the points where all other spring bumpers are weakest.

This additional reinforcement, supplied by the Inner Spring Steel Bar (U. S. E. exclusive construction), is a guarantee against vibration, noise or rattle.

Made of Quality Spring Steel, hardened and tempered.

Manufactured by the U. S. E., Inc. 6 and 8 W. 62d St. New York City, N. Y.

Producers of the Famous Universal Shock Eliminator

Write for Illustrated Pamphlet and Dealer's Discount

Will exhibit at New York, Chicago and Boston Automobile Shows

5 H.P. Valve-in-Head Motor

STROMBERG CARBURETOR
EISEMANN MAGNETO

129" Wheelbase

Torkensen Interval Screw Rear Axle



$1150 CHASSIS

"FORTY-FIVE MINUTES FROM BROADWAY"

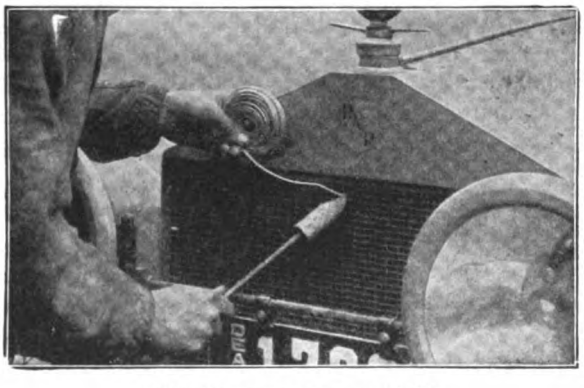
you will be welcomed during Show Week at the factory of the

KOEHLER
TRADE MARK

TON AND A QUARTER
The "Go Getter" Truck
and 3-TON TRACTOR
"The Land Tugboat"

We would be glad to have dealers plan ahead to visit our factory at Newark. We shall be pleased to personally meet you or make arrangements to facilitate your trip to our plant. Such a visit will, we feel sure, prove mutually pleasant and advantageous. Will you give us an idea of the approximate date that would best suit your convenience. **DEALERS—Send for our Selling Plan.**

H. J. Koehler Motors Corporation
150 Ogden Street, Newark, N. J.





Kester Crystal-Core Wire Solder

is the most practical solder for automobile repair work. The solder is a hollow wire filled with an acid-flux, which flows as solder is used. It eliminates preparing, hunting or applying the acid-flux.



Cleaner, Neater, Quicker

For spark plug and battery terminals, electric light connections, cracked fenders, gasoline pipe and tank joints, radiator leaks, speedometer flexible shaft, and the general garage uses.

Sold in one pound coils in cartons and on one, five and ten-pound spools.

Ask your jobber to supply you.

CHICAGO SOLDER CO.
CHICAGO ILLINOIS

WILLIAMS'
SILVERBEAM SEARCHLIGHTS SELL

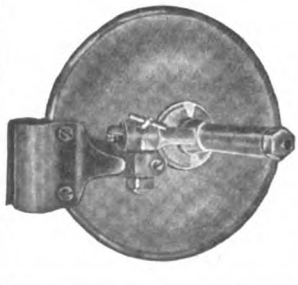
More readily than lower priced lamps when side by side on the dealer's counter, because they are

HANDSOME—Designed on beautiful lines, in harmony with the refined fittings demanded in the modern motor car.

WELL MADE—Superior workmanship showing at every point. Anti-rattling, heavy plating, baked enamel, connections complete.

PORTABLE—Readily detached to serve as trouble lamp—ten feet of cord gives easy access to every part of car.

LAW COMPLYING—The Williams locking bracket guards against infraction of laws regulating elevation ahead.



SILVERBEAM

$9.00 Baked enamel and nickel, in black or colors, convex lens, 6-inch reflector. With 7-inch reflector $10.00

Proven by three years' satisfactory service

Liberal Dealer Discounts

At All Jobbers, or Write

Williams Mfg. Co.
310 N. Flower, Santa Ana, Cal.

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HIGHLAND

A Commercial Body That You Can Depend On

We operate what we believe is the most complete commercial-body plant in the country.

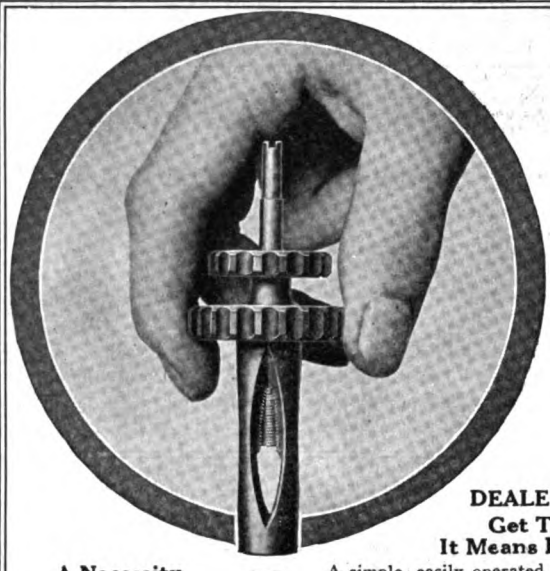
We have had over twenty-five years' experience in building commercial bodies for every requirement.

Most of the leading truck-builders are glad to avail themselves of our cooperation in designing bodies that are right.

Why not take advantage of it for your needs?

The Highland Body Manufacturing Company

1221 Elmwood Place Cincinnati, Ohio



DEALERS—
Get This
It Means Business

A Necessity
They move quickly at
$1.50



A simple, easily operated instrument with which the worn, irregular threads of the tire valve can be quickly recut.

A&H True Threader Valve Tool

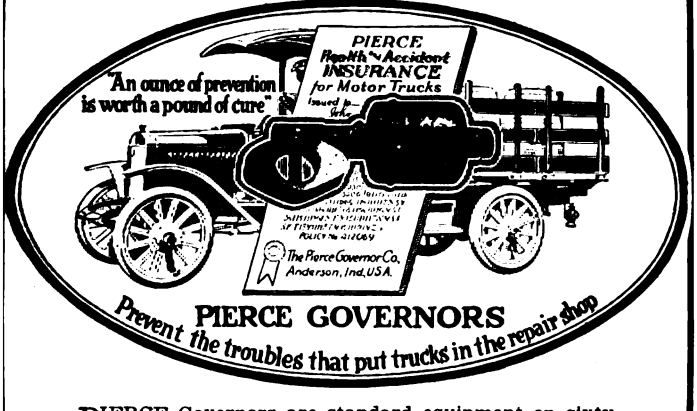
cuts both inside and outside threads of the cap stem and plunger at the same time and insures perfect alignment. Recutting threads stops leaking at the valve, which is the cause of a large percentage of tire trouble. Endorsed by all the leading tire Co's. Adopted by Miller, Firestone and U. S.

Write us today for further details and literature.

A & H MANUFACTURING CO., Inc.

505-507 WEST 45th STREET :: NEW YORK CITY

Reduce Cost of Motor Truck Maintenance



PIERCE Governors are standard equipment on sixty-seven of the prominent makes of motor trucks. Surely this is eloquent proof of the necessity for governor protection, as well as of Pierce superiority.

Dealers who sell Pierce equipped trucks do not have customers continually demanding unnecessary and unprofitable service—the governor protects the truck, makes speeding impossible and reduces upkeep cost to a minimum.

The Pierce Governor Company

World's Largest Governor Builders

Anderson, Indiana, U. S. A.

Trimmed with

MIDLAND STOCK WHITE ENAMELED TERRA COTTA



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Check Up Your Workman's Time

Know definitely just what each repair job costs. Keep an indisputable and correctly printed record of the exact time consumed in doing any repair work. Use

The Automatic Time Stamp

Service stations are finding that these machines are real money savers. They put your business on the firm foundation of actual costs to you. There isn't any guesswork. They save time, money and annoyance—eliminate losses and save profits.

Sample cost tickets and complete data sent on request.



The Automatic Time Stamp Co.

Automobile Dept., 161 Congress St. Est. 1888

Boston, Mass.

Originators of the Art of Printing Time Automatically

DETROIT BATTERIES

last approximately six months longer than the average battery. They are about 15 per cent more powerful in proportion to size and cost.

This is why their sale is now increasing on an average of over 60% every four weeks—a record no other battery has ever approached.

DETROIT BATTERY CO., Detroit, Mich.

Eastern Branch, 68th and Broadway, New York City

VULCAN QUALITY

AUTOMOBILE SPRINGS

SPRINGS IN STOCK FOR ALL CARS

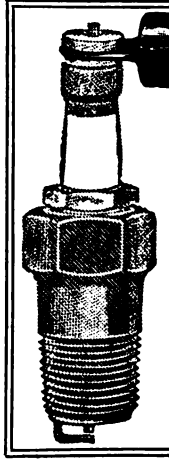
90,000 Springs. 588 Types.

6—FACTORY BRANCHES—6

St. Louis, Mo. 1402 Chestnut St. Minneapolis, Minn. 1024 Hennepin Ave.
Reading, Pa. 533 Franklin St. Ft. Worth, Tex. 708 Commerce St.
Sumter, S. C. 29 Caldwell St. Richmond, Ind. Colonial Bldg.

FACTORY RICHMOND, IND.

JENKINS VULCAN SPRING CO.



The SUPER SPARK

Sold on a money-back two-year guarantee. Used by all large fire departments.

Price: $2 Each; $8 for Set of 4

NO MORE ENGINE MISSING
NO MORE NEW PLUGS
NO MORE CLEANING PLUGS
NO MORE CARBONIZED PLUGS

You cannot foul the plugs by oil pumping cylinders; broken porcelains work perfectly; prevents platinum and breaker points from burning and eating away, and prevents burning out coils or puncturing a condenser.

SPECIAL OFFER — This ad. and $1.00 mailed or presented entitles the holder to one Super Spark, with full instructions.

State and County Representatives Wanted

SUPER SPARK COMPANY DEPT. A

756 Woodward Ave., Detroit, Michigan, U. S. A.

Inter-State

Everything O. K.

Inter-State service is always at your disposal to keep your car in shape—but it is a fact that few Inter-State owners have to call upon it. The usual verdict is "Everything O. K."



This owner satisfaction makes Inter-State dealers many sales. Profit by it Write us today.

$1,000 to $1,025

Effective December 1st, 1917

INTER-STATE MOTOR COMPANY
MUNCIE, INDIANA

Sexton's

CASTOR MOTOR OIL

Guarantees better compression, greater power and gasoline economy. Gives the best piston ring seal. No other similar.

Booklet on Request M-107

SEXTON OIL CO., North Chicago, Ill.



BUFFINGTON
Tire Saving Jack

To keep weight of car off tires when not in use. The part which comes in contact with the car is made of wood and cannot injure paint.

Easily adjusted to any height wheel. Jack is easily raised and lowered and allows car to stand firmly. Footrest 5 x 8.

Made from best screw polished round steel half-inch diameter. Finished in black enamel. Set of four, weighs 24 lbs.

Inquire for Prices

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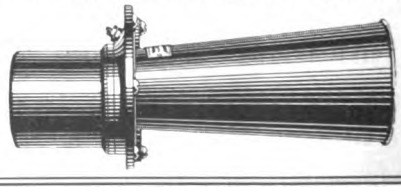
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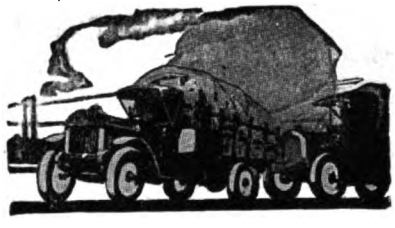
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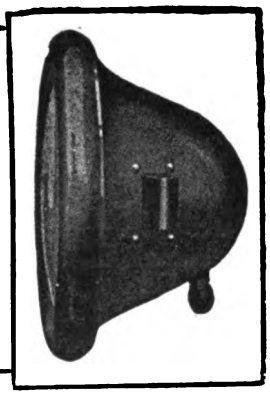
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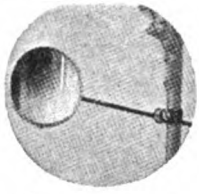
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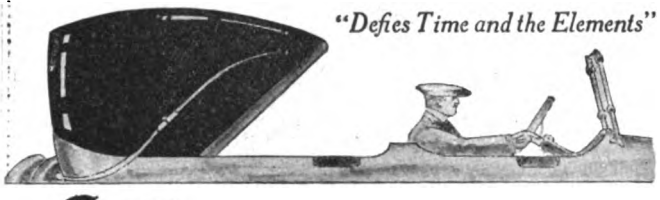
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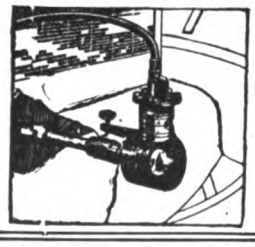
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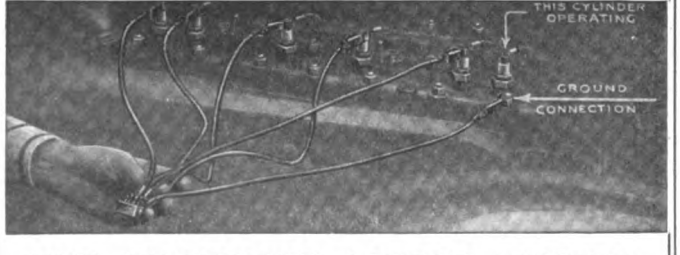
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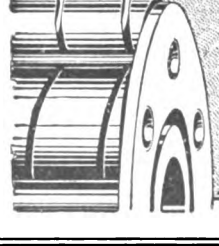
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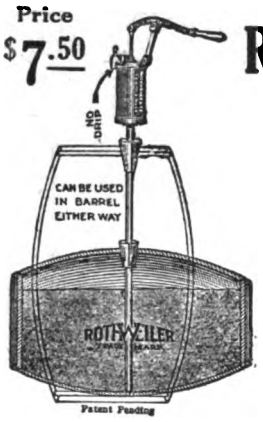
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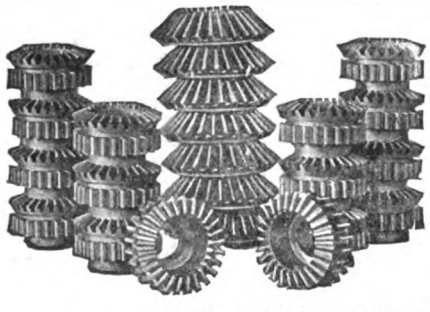
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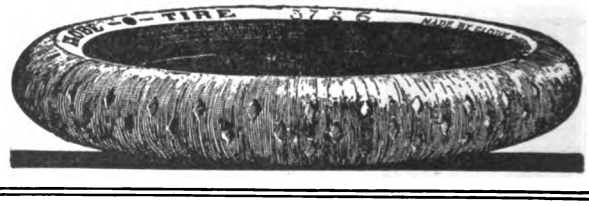
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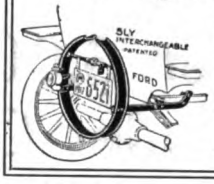
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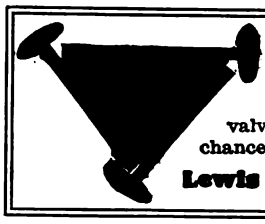


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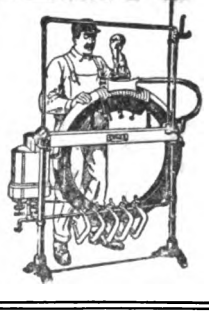
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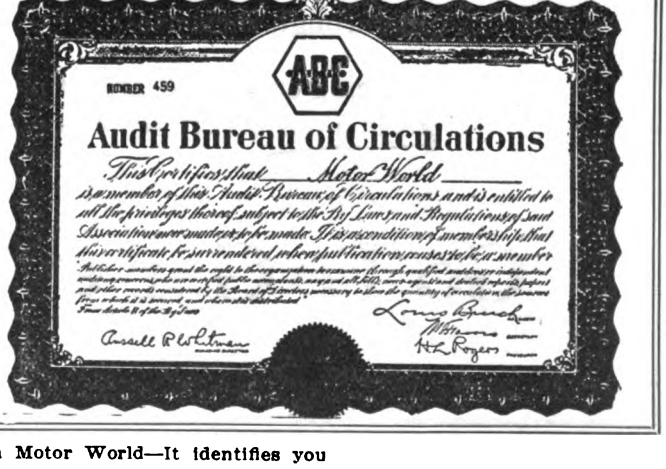
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30 x 3½	8.75	2.30	34 x 4	15.00	3.65	37 x 4½	22.80	4.60
32 x 3½	10.50	2.45	35 x 4	15.85	3.75	35 x 5	23.10	4.65
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32 x 3½	10.00	2.30	35 x 4	13.50	3.75	35 x 5	19.00	4.65
31 x 4	11.50	3.20	36 x 4	14.00	3.85	36 x 5	19.50	4.75
32 x 4	12.00	3.35	34 x 4½	17.00	4.15	37 x 5	20.00	4.95
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Dorris, 1906 to 1909
Peerless, 1906 to 1913
Stoddard-Dayton
Cole, 4-50-1913; 6-1913; 30-1912; 40-1914.
Marmon, 1909 to 1912
National 4, 1910 to 1913
Franklin, 1905 to 1911
Hupp 20 K
Glide-Warren-Detroit
Locomobile—Knox
Interstate—Jackson
Abbott Detroit
Courier-Glide
Buick 10-17-19-30
Moon 30-40-45 & C
Maxwell, all models to 13
Packard, 1905 to 1912
Pierce-Arrow, 1907 to 1912
Hudson 20, 33, 37, 6-54
Ohio-Regal, 20-30
Bergdoll-Staver
Allen, 1915 and 1916
King, 1911, 1912, 1913
Paige 25-36—Empire 25
Standard 6—Metz
Stevens-Duryea
Midland-Wayne-Welch
Selden
Stearns, 30 to 60
Kissel 4-6
Matheson 4-6
Amplex, all models
Pope Toledo—Winton 6
Oakland 30 & 40
Pope Hartford
Reo, 1908 to 1914
Atlas-Speedwell
Mitchell, 1908 to 1914
Thomas, all models
Great Western—R. C. H.
Oldsmobile Special
Limited-Autocrat-Defender—42 and 43
American Underslung 30 to 50 Scout
Case 40
Haynes—Carter Car
Overland 38-40-41-42-56-59-60-69-71-45-46-51-54-55
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Michigan-Halliday
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Dorris, 1910	100.00	Cadillac 1909-10-11 & 12
E. M. F. "30"	50.00	Chalmers F-K-M-30-36-40
Flanders "20"	50.00	Chase
Hupmobile "20"	80.00	Cole 30-40
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Mitchell 6—1912	100.00	Crow-Elkhart
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Johnson	Premier, 6 cylinder
Krit, 2-3 speed	Paige 25-36
Kline, 4-6 Cyl.	Peerless
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Lexington	Regal, 1909 to 1914
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Marathon	Stearns & Stearns-Knight
Midland	Stutz
Moline	Stoddard-Dayton
Moon	Studebaker, 4-14, 1915, 25, 1913-25-35
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30x3½	18.25	3.75	10.04	2.06
32x3½	21.40	3.85	11.77	2.12
31x4	28.00	4.75	15.40	2.61
32x4	28.60	4.85	15.73	2.67
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34 x 3½	6.00	36 x 4½	8.00
31 x 4	5.00	37 x 4½	8.50
32 x 4	5.50	35 x 5	9.00
33 x 4	6.50	36 x 5	9.00
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30 x 3½	7.35	7.50
32 x 3½	8.15	8.45
34 x 3½	8.90	9.10
31 x 4	9.10	9.40
32 x 4	10.30	10.65
33 x 4	10.65	10.85
34 x 4	10.75	10.95
35 x 4	11.20	11.60
36 x 4	11.65	11.85
34 x 4½	13.30	13.65
35 x 4½	13.65	13.95
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36,431 Repairs	50.00 or	2.50 per M.
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30x3½	4.00	36x4	7.00
32x3½	4.50	34x4½	7.50
31x4	5.00	35x4½	7.50
32x4	5.50	36x4½	7.00
34x3½	6.00	37x4½	8.00
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WHO MAKES THE TIRE CASE





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Auto Specialties

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The Hall-Thompson Co.
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The Studebaker dealer can logically follow such a course. His success with Studebaker cars and his knowledge of the gigantic resources which safeguard his future, inspire his complete confidence.

The illustrations shown on this page are typical examples of buildings recently erected by Studebaker dealers.

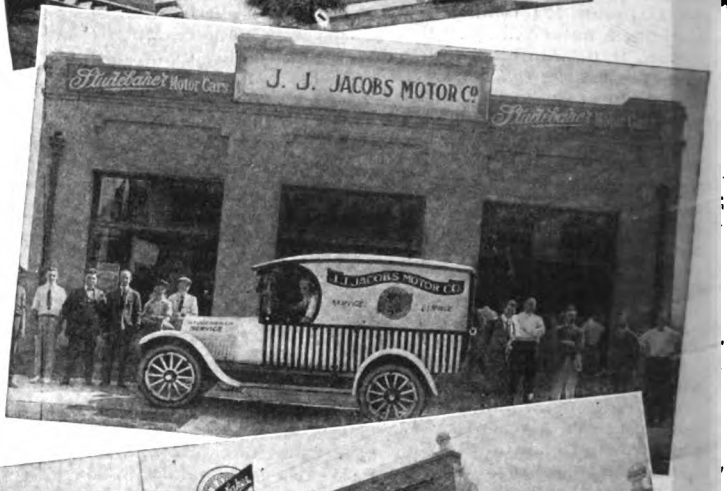
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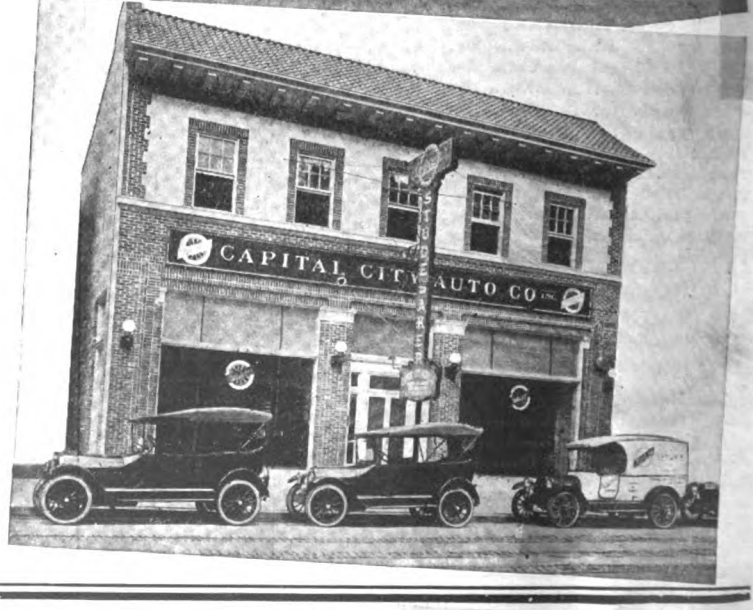
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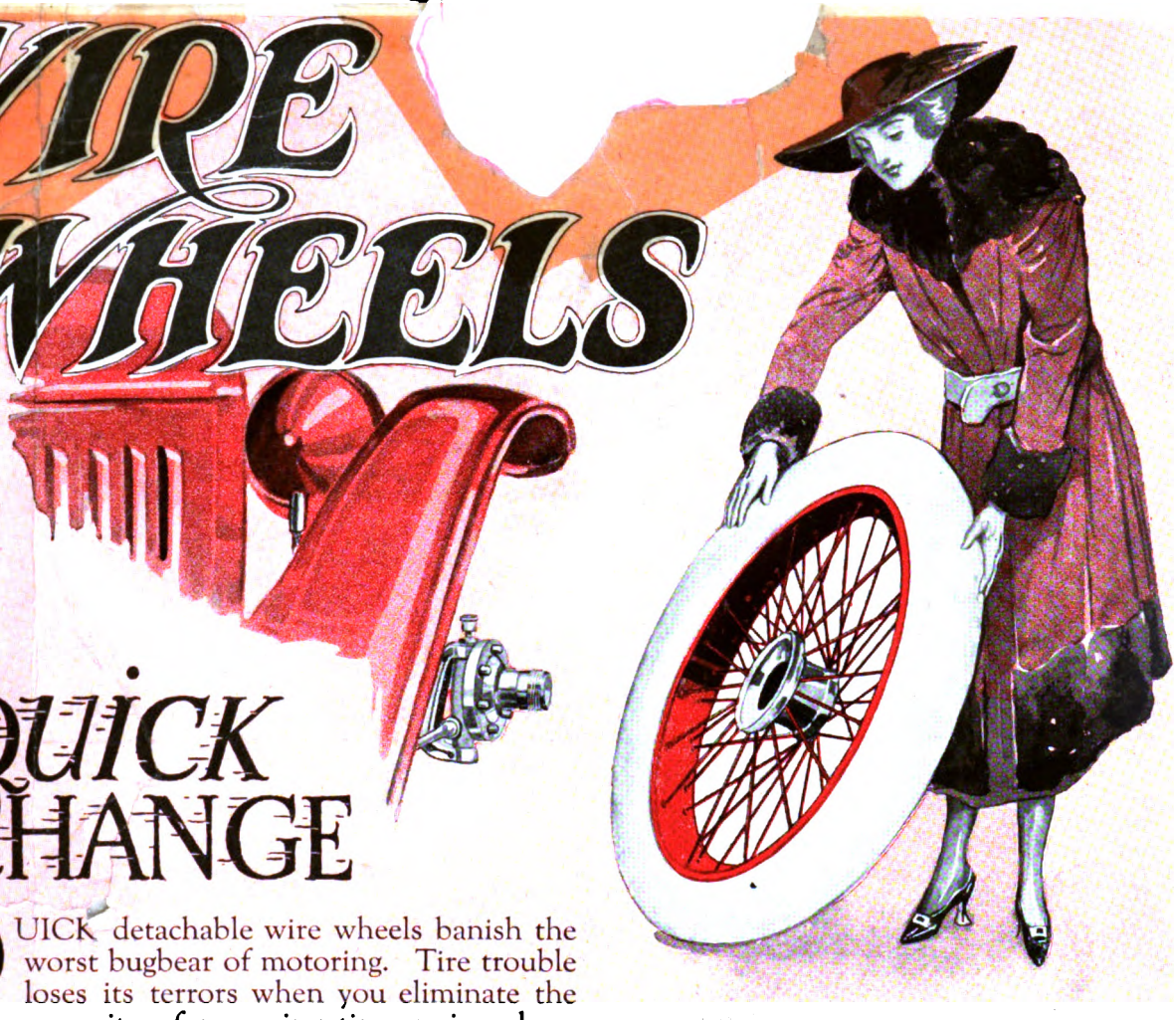






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for QUICK CHANGE

QUICK detachable wire wheels banish the worst bugbear of motoring. Tire trouble loses its terrors when you eliminate the necessity of removing tire or rim whenever there's a puncture or a blow-out. With wire-wheel equipment you simply jack up the car, remove the hub cap and replace the entire wheel with the tire already inflated.

Women find little difficulty in changing light, convenient wire wheels. Any driver will appreciate the great time and labor saving of wire wheels in such emergencies.

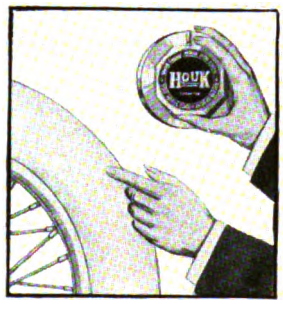
Twenty minutes or longer to change demountable rims, or four or five minutes—no more—to replace a wire wheel? Which appeals to you?

All world's records for rapid tire change have been made with wire wheels. A complete tire change has been effected in 16 seconds by a racing driver. Besides time and labor saving, wire wheels eliminate the nuisance of losing parts, soiling hands and clothing and being "hung up" by the roadside. Wire wheels are interchangeable, the spare wheel fitting any axle.

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(Successors to Houk Manufacturing Co.)
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PHILADELPHIA, 328 North Broad Street
LOS ANGELES, 1101 South Hill Street
CHICAGO, 23rd and Indiana Avenue
DETROIT, 16 Davenport Street
SAN FRANCISCO, 1243 Van Ness Avenue



Only one nut to handle. No battle with tire or rim. Both are on the wire wheel. *Always remember the bearings are never disturbed in changing.*

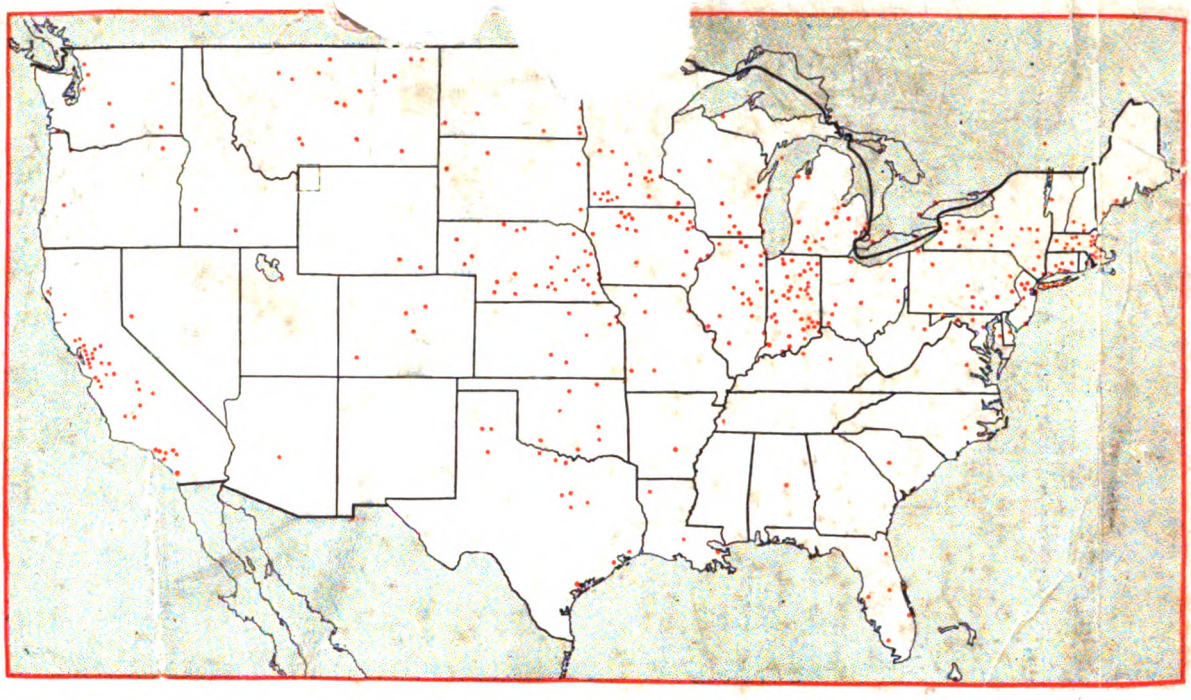
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We have inaugurated a superior service station policy which brings the bulk of the battery business to the U S L man.

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TO CAR OWNERS

No matter what the make of your old battery, USL Service Stations maintain parts in stock so they can repair it. It is a point of pride with USL men that they repair many batteries pronounced hopeless by others—repair them so they will be serviceable, often, for many months. And they back up their repairs with the guaranteed adjustment plan under which you pay for what you get and get what you pay for, measured in months of repair serviceability.

USL Service consists in aiding you to get another season's wear out of your old battery or in tuning up your electrical system so it will treat your battery right. It consists of watering your battery and inspecting your electrical operation, free of charge, during your short monthly visits, to prevent the development of battery or electrical trouble.

USL Service Stations know that their prosperity depends on satisfying you and by doing the right thing by you. Therefore they need you as a satisfied customer year in and year out.

Visit the USL Service Station monthly. You will find it a profitable investment.

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